

3dcreative

Issue 089 January 2013

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PEDRO CONTI'S

ONE MORE BEER!



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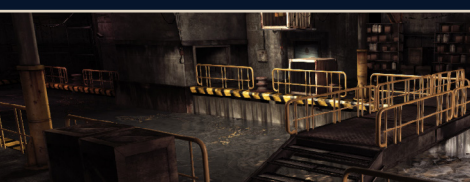
Andrew Hickinbottom's Character Creation

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EDITORIAL

Hello and welcome to the January issue of 3DCreative! We hope you had a great Christmas and an even better New Year. It's time for us to begin our New Year's resolution by continuing to bring you an exciting collection of tutorials and artwork to get your year off to a creative start!

This issue's awesome cover image is the creation of **Pedro Conti**, who created this character for the short animation *One More Beer*, which the talented 3D artist talked to us about when we caught up with him for this month's interview.

Our artists continue with the modeling of vehicles in this month's chapter of our Beginner's Guide to Modeling Vehicles series, where they have been using the 2D concept and technical drawings provided, to talk us through a step-by-step guide to turning this information into an accurate and exciting 3D model. We are halfway through the series now and this month we see **Renato Gonzalez Aguilante** start the texturing process in Maya, whilst **Arturo Garcia** completes the modeling of his vehicle in 3ds Max.

This month we see the final installment of **Andrew Hickinbottom's** Female Character Creation series. In the previous chapters Andrew has covered the modeling, unwrapping and texturing of Olivia, and has also demonstrated lighting the scene and how to build up the background and composition. In the finale chapter of the series Andrew documents the final stages, including cloth simulation, fine-tuning, lighting, shading, rendering and compositing.

Andrew Finch has been guiding us through the creation of an environment built in the games engine UDK. In the last chapter Andrew demonstrated how to finalize the layout of all of our assets within the environment, ready for showing us how to start the draft lighting phase this month. Andrew also demonstrates how to place decals to add a greater level of detail.

ZBrush is an impressive piece of software that can help you to achieve so much. It offers endless possibilities; your imagination is truly the limit! In our ZBrush Quadruped series our talented artists have been given complete freedom to show us how to create the organic forms of their quadrupeds. Demonstrating the boundaries of his imagination this month is **Mariano Steiner**, who talks us through the creation of his cheeky salamander-inspired quadruped by covering the concept and base mesh through to the detailing and final render.

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What's in this month?



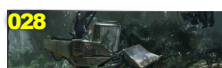
PEDRO CONTI

Interview - 3D Artist



THE GALLERY

10 of the Best 3D Artworks



FUTURISTIC VEHICLES

3ds Max & Maya - Chapter 4



OLIVIA - FEMALE CHARACTER

Chapter 3: Final Stages



THE SUBMARINE PEN

Chapter 7: Draft Lighting & Placing Decals



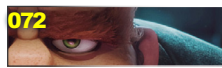
ZBRUSH QUADRUPEDS

Chapter 4: Salamander



"SABRETOOTH"

Project Overview by Adam Sacco



SAMPLE CHAPTER

Digital Art Masters: Volume 7 - Pedro Conti



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We also have a great Making Of by **Adam Sacco**, who talks us through how he created his image of X-Men villain Sabretooth, and a brilliant gallery containing work by **Robert James Craig**, **Christian Siecora**, **Nuttavut Baiphongwongse** and many more!

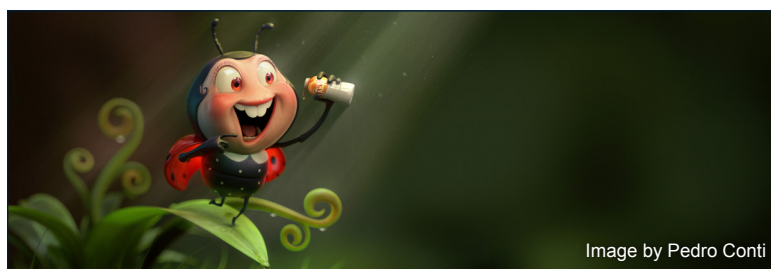


Image by Pedro Conti

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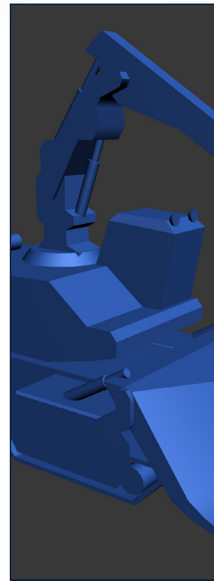
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CONTRIBUTING ARTISTS

Every month artists from around the world contribute to 3DCreative, and you can find out a little more about them right here! If you'd like to get involved in the 3DCreative magazine, please contact: simon@3dtotal.com



ARTURO GARCIA

Arturo Garcia is a freelancer living in Mexico, with 2 years experience in modelling cars.

He uses 3ds Max software, and his goal is to make models become as real as possible – even confusing them with what is real!

<http://dessga.cgsociety.org/gallery>

dessga@yahoo.com.mx



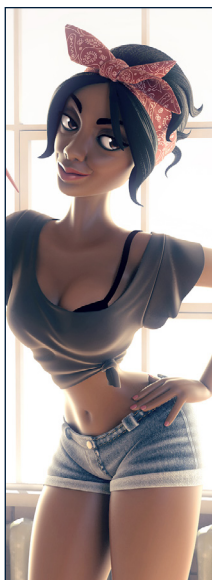
ANDREW HICKINBOTTOM

Andrew Hickinbottom is an experienced character modeler who takes great influence from 2D artistry, pinup art

and cartoons. Andrew is currently working as a freelance character modeler after working full-time at various small studios for over 10 years.

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ANDREW FINCH

Aged 30 and living in the great city of Birmingham, in the U.K. He has a degree in 3D Animation which inspired his

passion for environment art. He now works as an environment artist at Codemasters. He says, "Working in the games industry is exciting: you never know what the next project will be and there's always something new to learn. This helps to keep you creative and grow as an artist." afinchy@googlemail.com



PEDRO CONTI

Pedro Conti is a Brazilian 3D generalist artist, with a focus on character development, lighting and shading. He

started his career in 2007 at Seagulls Fly and is currently a partner of Techno image, which is a studio focused on illustration and character design for advertisement.

<http://www.pedroconti.com/>

pedro_conti@hotmail.com



Image by Christian Siecora

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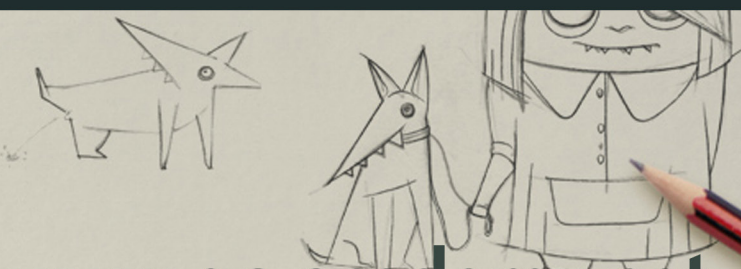
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INTERVIEW WITH PEDRO CONTI

"SOMETIMES SPENDING A LOT OF TIME AT THE COMPUTER IS LIKE CHOKING, CREATIVELY SPEAKING, SO TAKING A BREAK IS ALWAYS WELCOME."

Pedro Conti is a talented CG generalist from Brazil and in this month's interview he talks to us about his route into the CG industry, favorite projects he has worked on and gives advice to people trying to get into the industry.



Hi Pedro, thanks for talking to us today.

Firstly, could you tell our readers a bit about your background and how you found your way into the CG industry?

Thank you so much for the opportunity. Well, I think the most important step in my journey into the CG industry was in high school, back in 2003. During this time I met two friends who were really good illustrators. I was so fascinated by their work that I started to discover myself as an artist. I was really bad, but I was really motivated to practice more and more; I was much more motivated by drawing than the classes at the school!

This first push allowed me to discover digital art. In 2005 my brother was studying industrial design and he showed me some of the software he was using. It drove me crazy and I decided to join the same university as him.

I kept my focus on art and in 2006 I started to study 3ds Max. I heard it was the same software that people used to create movies, and so it was that moment that I decided this was what I wanted to do for the rest of my life.

You've worked for some of the biggest companies in Brazil, including Techno Image and Seagulls Fly – how did you managed to get hired?

I think my first job at Seagulls Fly was a mix of luck and a lot of effort. I spent 2006 studying 3D like crazy and everything I did was rubbish.



It didn't look different, as I was in the very first stages of developing my own style and techniques. However, it was good in some ways because I learned a lot about software and technical stuff.

In January 2007, after visiting my family in a small and nostalgic city in Brazil called Itobi, I decided to recreate a scene based in that city. This image, *The Wonder Years*, had great exposure in CG forums and it gave me my

first opportunity in the industry. My portfolio was basically that one image! I was lucky to be hired by Seagulls Fly, which was one of the biggest companies in Brazil; I consider them my school of CG. They've taught me everything about modeling, texturing, shading, lighting, post work and lots more, and having their name in my portfolio brought me many opportunities in the market. I was invited to work at Techno Image basically because I was a Seagulls Fly employee.



In your opinion, what are these companies looking for in portfolios? Do you have any advice for anyone wishing to get into the industry and work for companies like these?

Nowadays, with new schools and tons of tutorials on the internet, the number of CG artists has increased exponentially. With that, the competition for opportunities has increased as well. Software programs are much more artistic than they were a few years ago, so companies are now looking for who you are as an artist and not so much your technical ability.

For example, if you are a modeler, I believe if you present your models with artistic lighting, it will help a lot in selling your modeling skills. My tip would be to focus on the following areas: improving your technical abilities, developing your artistic sense to show your point of view (by

studying as much as you can), and perfecting how you present your work.

Artists often forget about the creation process and just care about the final result, but working in a team means each step has to be done well. Improve your pipeline and speed will allow you to adapt to the market.

Lastly, but no less importantly, be professional, responsible and friendly. That's what will make you move forward!

How would you define your style? And what is your typical workflow when creating an image?

In fact, I don't have a defined style. I'm still developing and searching for it, but it's basically everything that I like, combined. I

have been hugely influenced by Disney Pixar, DreamWorks, Meindbender, Tiago Hoisel and photography in general. Actually, it's a hard question to answer because it changes every day. To be honest, I can't say that I have a unique style yet because my references are often recognizable in my work; maybe in a few years I will be able to answer this question better!

For personal projects, my pipeline is non-linear. As I'm not a great concept artist, I used to make some quick sketches in 2D, then move to 3D and do some paintovers in Photoshop to figure out the layout or the character. From the very first steps, I try to visualize how the final image will look, even just using placeholder models. I add some lights to test the mood, whilst working on other steps at the same time.



For professional projects, my workflow is linear. I usually receive a briefing and layout, and with that in hand, I start to work normally with modeling (3ds Max, ZBrush), texturing (ZBrush and Photoshop), shading/lighting (3ds Max and V-Ray) and composition (Photoshop/After Effects).

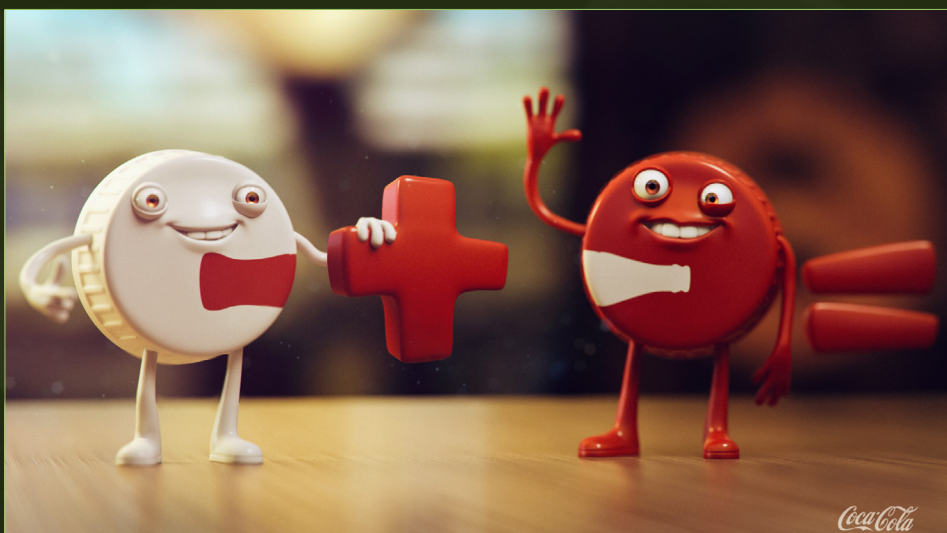
What is your favorite project you have worked on to date? And can you tell us about any projects you are currently working on?

Making short films was something I've always dreamed of and last month I had the opportunity to finish my own short. So, One More Beer is my favorite project, so far.

I'm in lucky times; I'm currently working as a character artist for a company called Nathan

Love, based in New York. We are developing some funny characters for a big food brand. Besides that, I'm doing some pitching as a character artist too, with the guys from Meindbender animation studios.

"I WAS IN TOUCH WITH A HUGE VARIETY OF ART, FOOD AND PEOPLE, WHICH OPENED MY MIND TO DIFFERENT CULTURES AND WAYS OF LIFE."





As you mentioned, an image based around the city of Itobi helped land you a job at Seagulls Fly. Did growing up in São Paulo affect your endeavors as a creative person?

Creatively, I think so, but it's not a direct influence in my work. As São Paulo is the biggest city in Brazil, I was in touch with a huge variety of art, food and people, which opened my mind to different cultures and ways of life.

But what most contributed to my creative growth was my childhood. I was lucky to grow up in a

place where I had great friends and we spent all our free time building things like skateboarding ramps and enjoying every single moment of being a kid.

What draws you to the style/type of art you make? And tell us what part of 3D you like the most and why?

I have really loved cartoons since my childhood, and the possibility of doing simple shaped characters with a realistic finish in 3D, excites me a lot.



Design is something that fascinates me too and as I mentioned before, I'm a really big fan of companies like Disney and DreamWorks. I also like many illustrators, such as Cory Loftis, Sam Mich, Jim Kim, Ivan Oviedo and Tiago Hoisel etc.

It's hard to tell you the part of 3D I most like, because I love all the steps. Honestly, character modeling, texturing and shading/lighting are my favorite.

After a few years working with 3D, I learned that each step contributes hugely to a good final image, and as I always worked as a generalist



I had to learn and understand the importance of each one. Maybe it's easier to tell you what parts I don't like – rigging and simulation!

If there was a project you could have worked on, what would it be and why?

One my favorite animations is *The Pirate*, by Meindbender studios, which was done as a promo for the Cartoon Network. It's definitely a project I would love to have worked on. It's perfect in all aspects: extremely creative in terms of design, with the pirate with an upside-down mouth. The characters have strong personalities, which makes the animation solid and funny.

The first time I saw this short film, I thought it was a mix of 3D with real footage, but no, it's a fully 3D production, which made me feel so sad. The render is completely realistic and every single object has imperfections and displacement maps.

Nowadays I'm having the opportunity of working with Meindbender, and it's been like a dream come true. It's more than just a collection of mad and talented guys, bombarding this planet with their unique animation style; they are amazing people, humble and kind, and they deserve all the success and respect they receive.

How do you see yourself progressing in the future and growing as an artist? Are there any elements of working in 3D that you would still like to tackle and master?

You should keep in mind that art itself is a never-ending learning curve!

For sure I have a lot of plans in my mind for the future. I want to keep improving my skills in modeling, texturing, shading and lighting, but I'm sure it's not enough, as its just technical stuff. I'm really motivated by artistic development, like character design, direction, script and cinematography. I've spent the last six years studying 3D, and now I want to make some time for traditional art. As a self-taught artist, I



didn't have the opportunity to take art classes and I really miss it in my work. I'm studying photography at the moment, which already helps me to understand a lot more about lighting and materials, besides the compositional aspects. So, I really want to go deeper into this subject in the future.

What do you like to do in the time that you get to spend away from your computer? Do you find your free time a great source of inspiration?

I love traveling and I think it's the best inspiration source ever. In October I was on vacation and

now I'm back with a lot of fresh new ideas in mind that I'm ready to start work on. Sometimes spending a lot of time at the computer is like choking, creatively speaking, so taking a break is always welcome. Besides that, I really like to spend my time with good friends, playing guitar, skateboarding and enjoying life as much as I can.

Thanks for taking the time to talk to 3DCreative!

Thank you so much for the amazing opportunity. I'm really glad!





PEDRO CONTI

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Email: pedro_conti@hotmail.com

Interviewed by: Jess Serjent-Tipping

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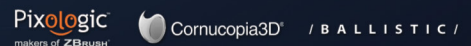
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the GALLERY

This month we feature: Nuttavut Baiphowongse | Mario Garcia Nocales | Alexander Beim | Maarten Verhoeven
Christian Siecora | Seid Tursic | Luis Lopes | Rakan Jandali | Robert James Craig | Furio Tedeschi

P

Christian Siecora

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(Right)



THE DREADNOUGHT

Mario García Nogales

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(Below)





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HOOKAH TIME

Nuttavut Baiphongse

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KNIGHT GIRL

Seid Tursic

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Based on a concept by South
Korean concept artist Hahno Lee
(Top Left)

CONAN FUTURE BOY

Luis Lopes

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lopes.lm@gmail.com

Based on the character by Hayao Miyazaki
(Top Right)

GMCHOOK

Furio Tedeschi

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redeye_tide@hotmail.com

(Bottom Left)

SHARKBAIT!

Maarten Verhoeven

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darth_mutte@yahoo.com





BRUCE_LOTUSART

Alexander Beim

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<http://www.youtube.com/watch?v=58GHul9j3I>

alex@lotusart.de



MONDRIAN INSPIRED HOTEL ROOM

Rakan Jandali

<http://rakanjandali.cgsociety.org/gallery/>

rj_zty@yahoo.com



RAKAN JANDALI





ART CLASS

Robert James Craig

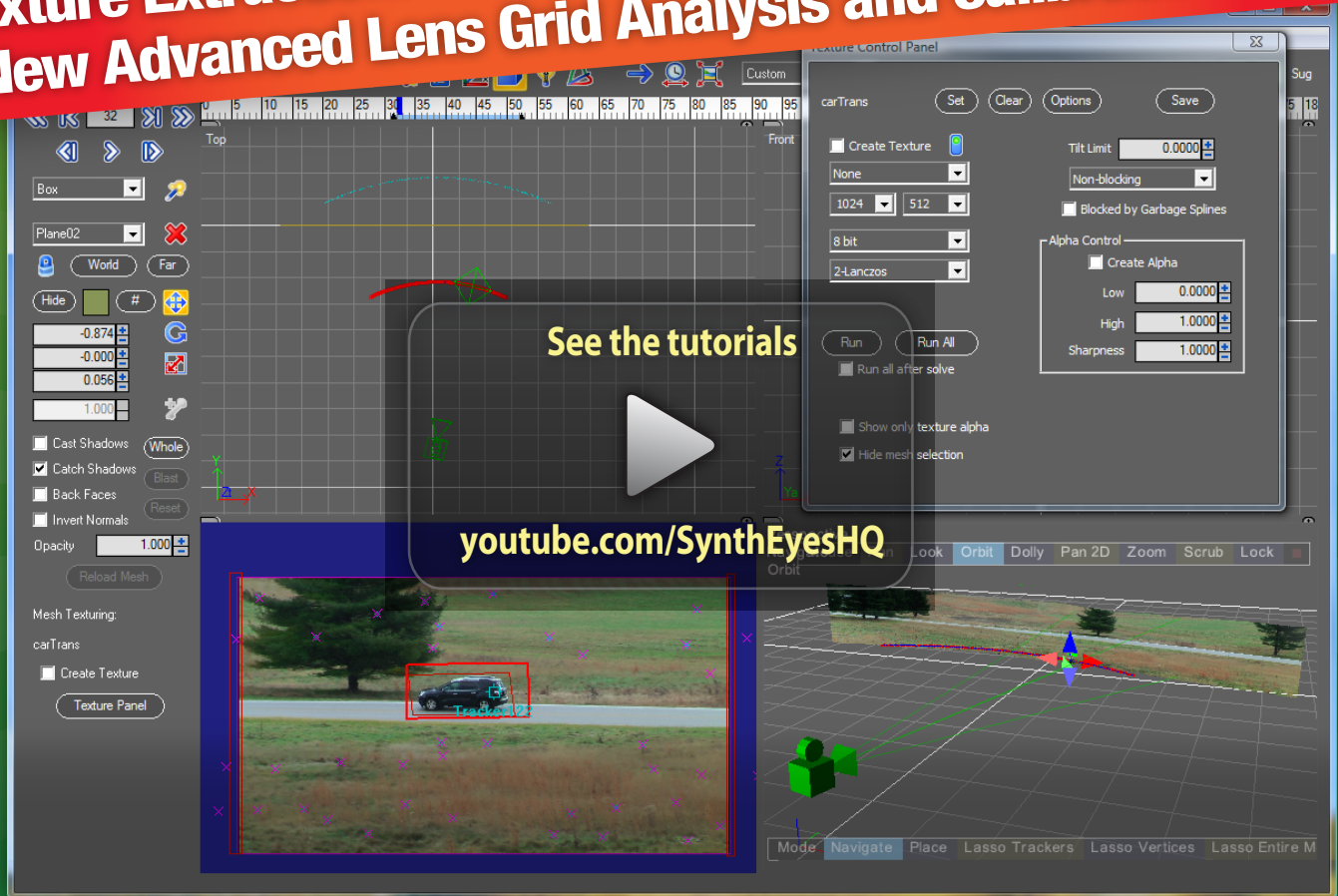
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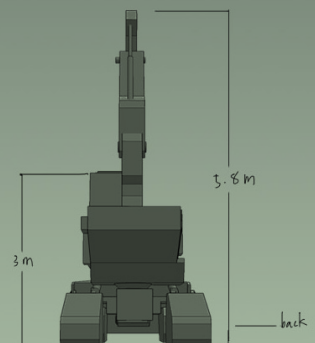
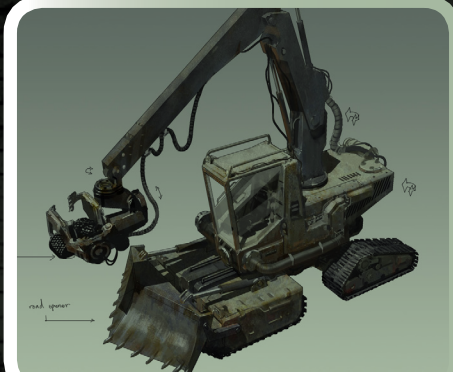
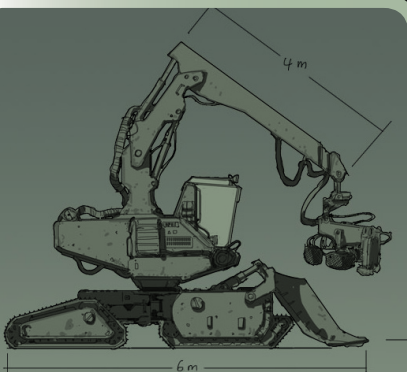
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Futuristic vehicles are a common subject matter in the CG world. However, in this series we will be approaching creating futuristic vehicles in a slightly different way. Our two amazing artists have been provided with a 2D concept and technical drawing of a destructive deforestation vehicle. Over the eight-part series they will detail a step-by-step guide on how to turn this 2D information into an accurate and exciting 3D model, from the initial modeling phase through to the final rendering.

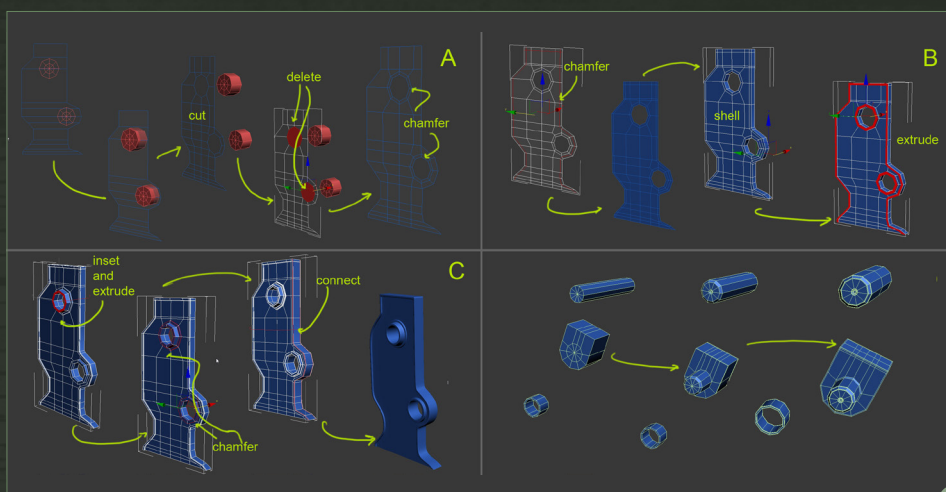


CHAPTER 04

Software used: 3ds Max

Let's continue with the tutorial! To begin with we will create the base of the hydraulic arm (**Fig.01**). We start from the reference model and create two cylinders, which we will use as guides to make some cuts. First, we will make circular cuts where the pneumatic cylinders will be, delete the central faces and apply Chamfer Edges (A).

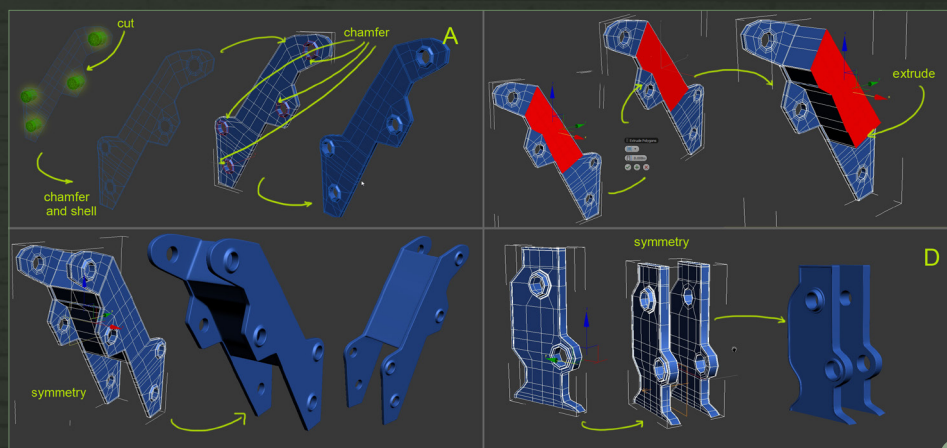
We apply a chamfer with a value of 1.0 to the edge, apply Shell and convert it to an editable poly. Then select the faces we created when applying the chamfer to the edges and apply Extrude (B). Next, select the faces of the edge of the upper circle and apply Inset and then



01

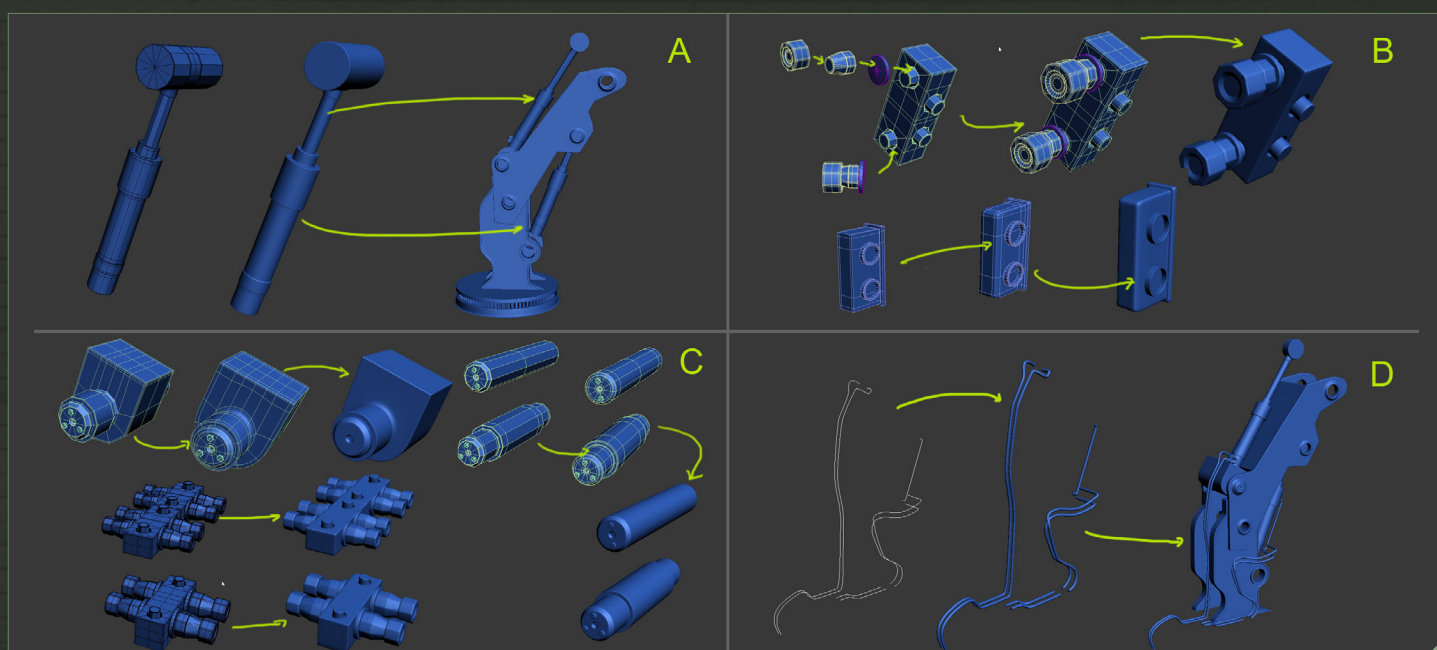
extrude it. Select the edges of both holes and apply a chamfer, then connect to the edges of the full body and apply TurboSmooth to see the result (C). The following parts can be created using the same technique (D).

The next section of the arm is created using a similar process, so I will only make a few images to demonstrate this (**Fig.02**) (A). We select some of the interior faces and we apply Extrude with a small value, and then apply Extrude again, this time with a bigger value (B). To this we apply Symmetry and TurboSmooth (C), then turn to the first part of the arm and apply the same Symmetry and TurboSmooth (D).



02

Copy one of the shovel's cylinders twice and put one of them in the base of the hydraulic arm, and the other in the upper part (**Fig.03**) (A). To create details to this section we add some pieces, such as retainers, washers, screws and connections. These are very simple, so I will just use images to illustrate the process (B). Also,



03

create bushings to join the hydraulic cylinders to the arm and the wiring for the hydraulic fluid, using splines (D).

With all the parts that we have previously made ready, it's time to put them in their respective positions (**Fig.04**).

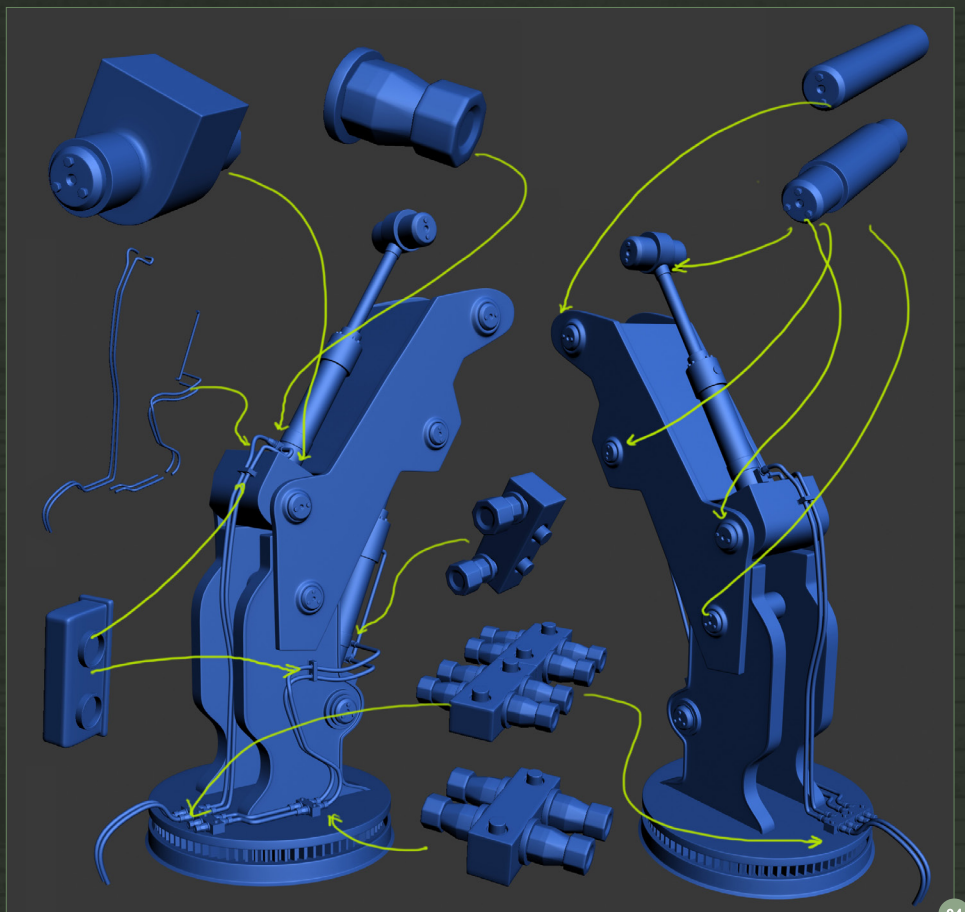
We now move forward to the third section of the arm (**Fig.05**). As we did in the earlier parts, create two cylinders to act as templates, make the cuts and separate into two pieces. Select the first one and apply a chamfer to the inside edge (A), and to the outside edge. Now apply Shell. Go to Editable Poly, select the faces of the inside edge and apply Extrude. We apply a chamfer to the selected edges, and then to the edges of the sides, and with the two segments apply Connect (B).

Move on to the next piece and apply a chamfer to the outer rim. Then select the faces of both edges and some more faces, and apply Extrude. Attach the part that you created earlier and apply Symmetry and TurboSmooth (C).

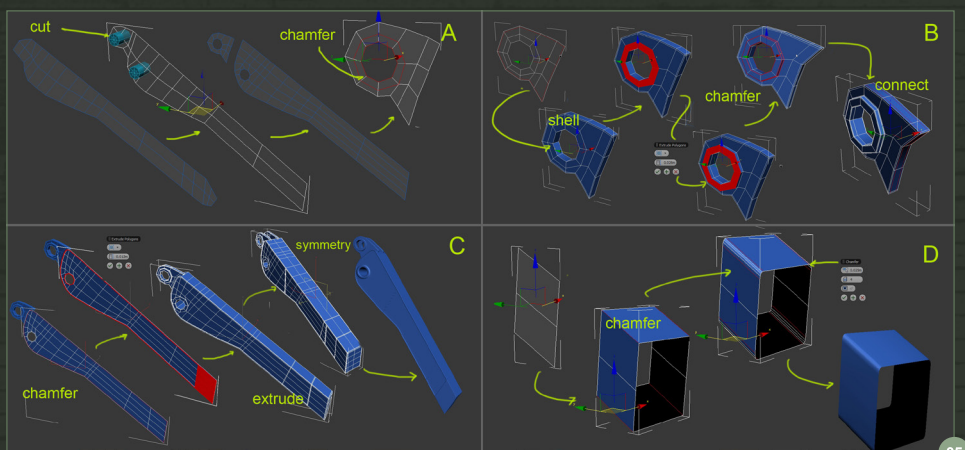
The next piece is very simple; we only apply a Shell modifier, and with the editable poly, delete the faces that are shown in the image. Select the edges of the four sides and apply a chamfer with four segments. Then we select all the faces and apply Anti-aliasing by Groups (D).

This next piece is the part that holds the module combine harvester heads (**Fig.06**). To start with, take the last piece that we separated in the previous step. To this, apply the Edge chamfer, Shell modifier and convert it to an editable poly. Then select the central edges and apply Connect, then take part of the inner faces and apply Extrude twice (A).

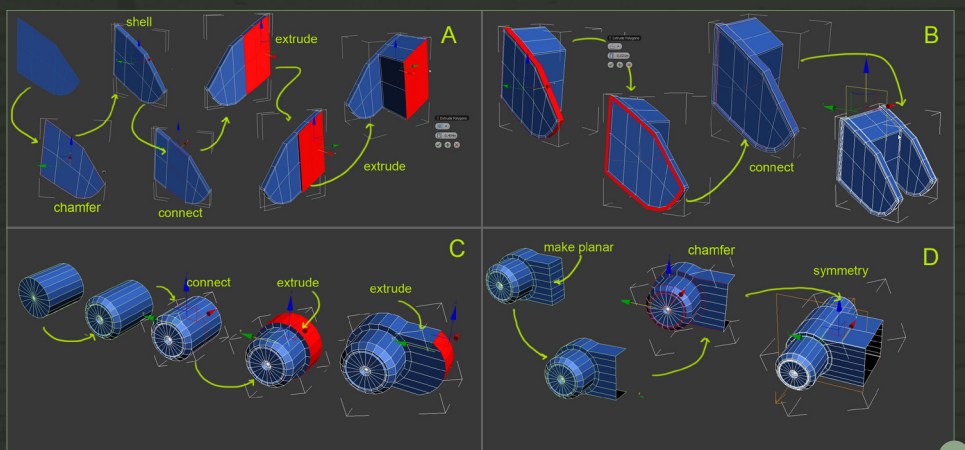
Select the side edges of the work piece and apply Extrude, then repeat with the next set of side edges. We make a few cuts to the mesh with the Swift Loop tool; apply a Symmetry modifier and TurboSmooth (B).



04



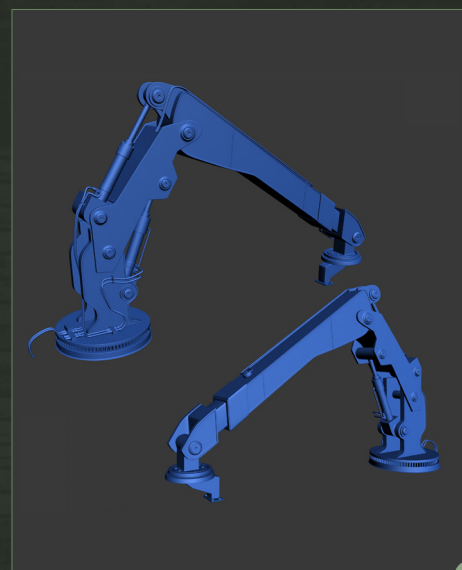
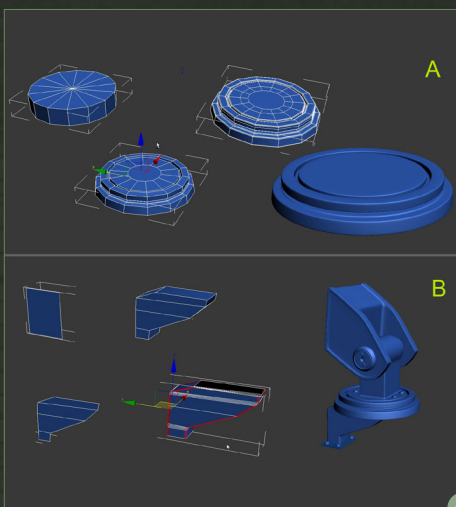
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06

We start with a cylinder of 20 faces, which we turn into an editable poly. First we add details to one end by applying Extrude, and we then connect the edges of the center of the cylinder. Take the faces that we just created and apply Extrude. After, take the seven faces, and apply Extrude by Group (C).

Apply Make Planar to flatten the polys and then delete the faces. Select the edges and apply Chamfer, then apply Symmetry and convert it to an editable poly. Extrude Edge to help when it comes to assembling the parts (D).

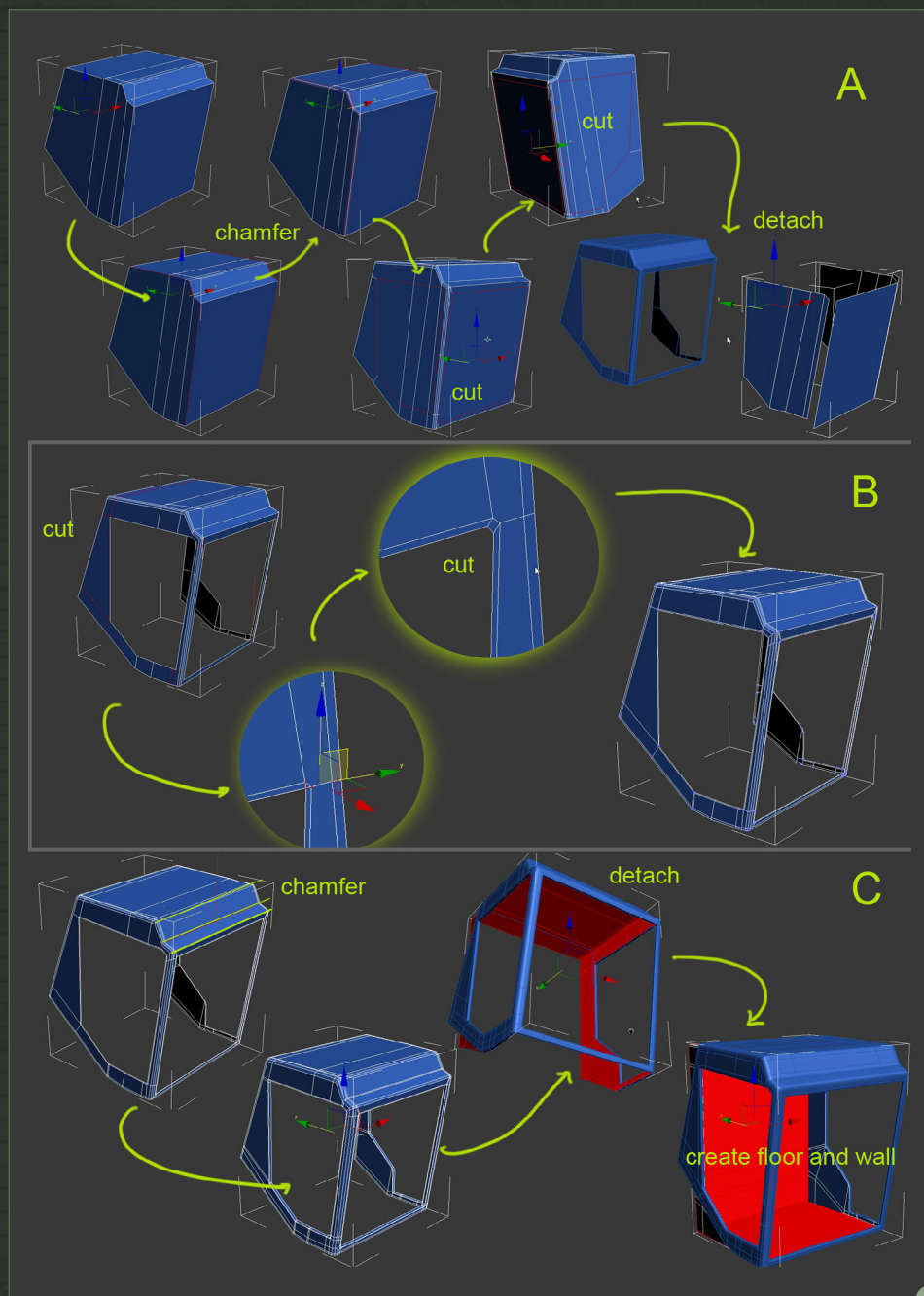


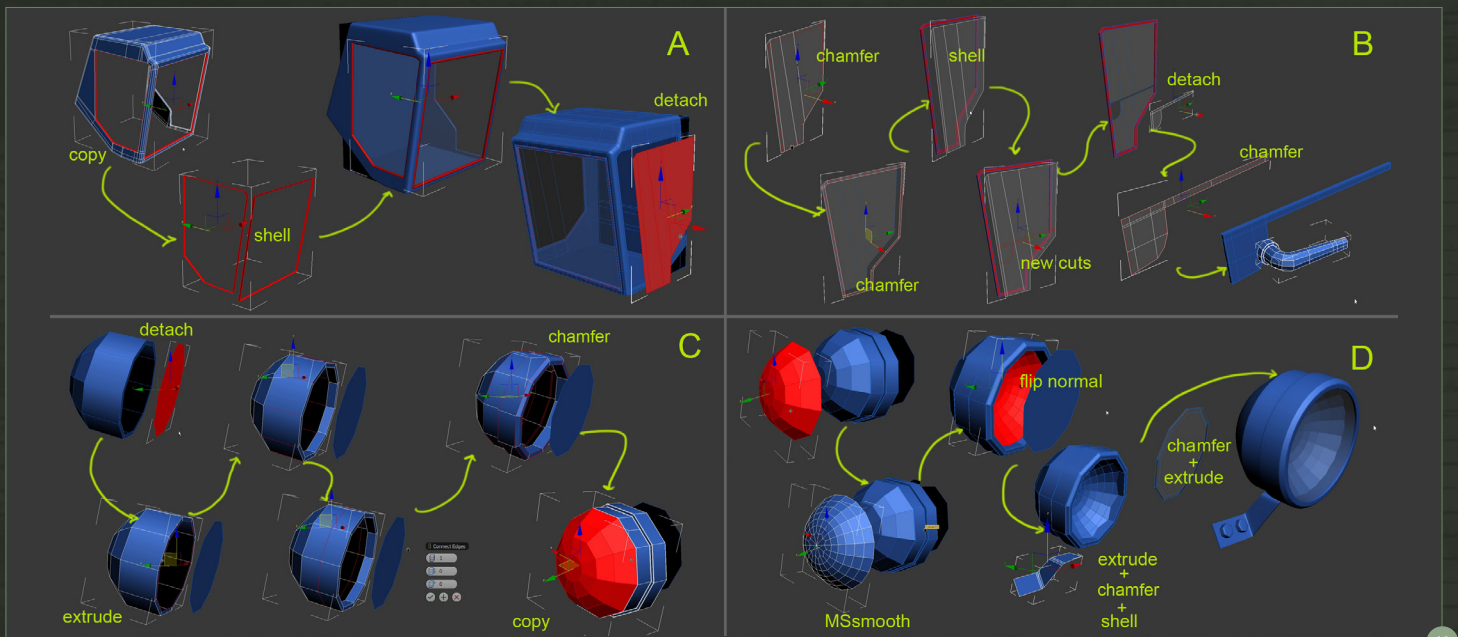
The next part is a very simple part of a cylinder (Fig.07). An Extrude is applied to the 14 side faces, giving it shape, and a Chamfer to finish it off (A). The next part to follow is a plane with some cuts made, and some simple pieces with a Shell modifier applied. Apply a chamfer to the edges to give them a softer shape, and add a plaque at the bottom made with a box, to which a chamfer can be applied to two of its edges. When we have these pieces placed in position, add some screws and a bushing (B).

Now we gather up all the previous parts and will have a full arm. We add a few connections in the upper part for the extension of the hydraulic fluid arm (Fig.08).

Now we are going to design the cockpit. Once you have a shape similar to what you can see at the start of Fig.09 (A), apply Chamfer to the edges of the sides. Then cut out areas to determine the location of the windows, and separate them with Detach.

Select the cabin and connect the vertices that have been floating about since we've made the previous cuts; this is important so that errors don't occur when applying TurboSmooth. When applying Chamfer, apply to all outside edges and interior. At the corners of the inner edges you might find that applying Chamfer has created a three-sided polygon where the three





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vertices converge. This can cause problems when applying TurboSmooth, so fix it by making cuts to create a four-sided polygon (B).

Select the edges of the polys in the upper front edge, apply Chamfer, Shell and convert it to an editable poly. Now we have the external structure of the cabin and the base for the interior parts, so we then select the polys of the interior and separate it, select the inside, and create the floor and rear wall of the cab (C).

Select the polys from the edges of the front and right of the cabin, and copy them (Fig.10). To these we apply a Shell modifier and convert

them to an editable poly. To create the glass for the cabin door, separate the part that will be the opening (A). To this, make a few cuts to create the door frame, apply a chamfer to the edges and then a Shell modifier.

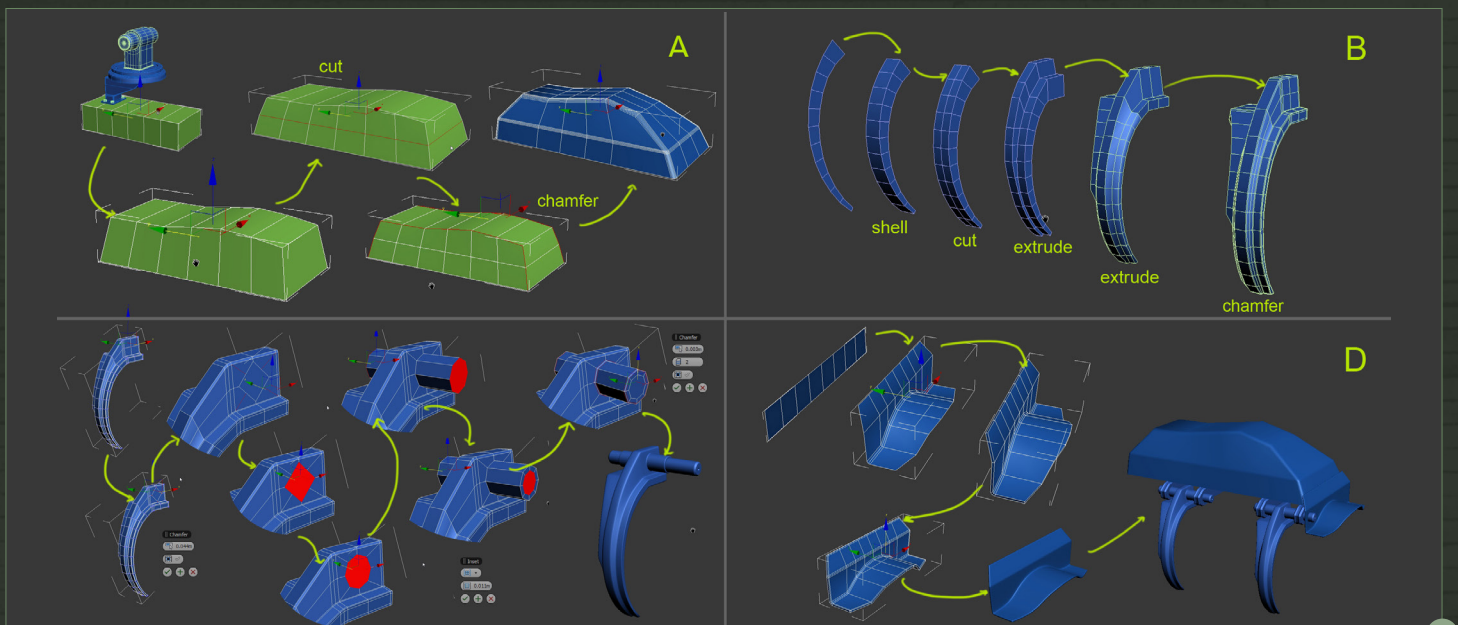
We make a few cuts to the section of the lock, then separate it and apply Chamfer and Shell. The lock handle is created by extruding a cylinder of 10 sides to give it shape (B).

To shape the focus point located on the roof of the cabin, take the reference model, separate the front part, select the edge and apply

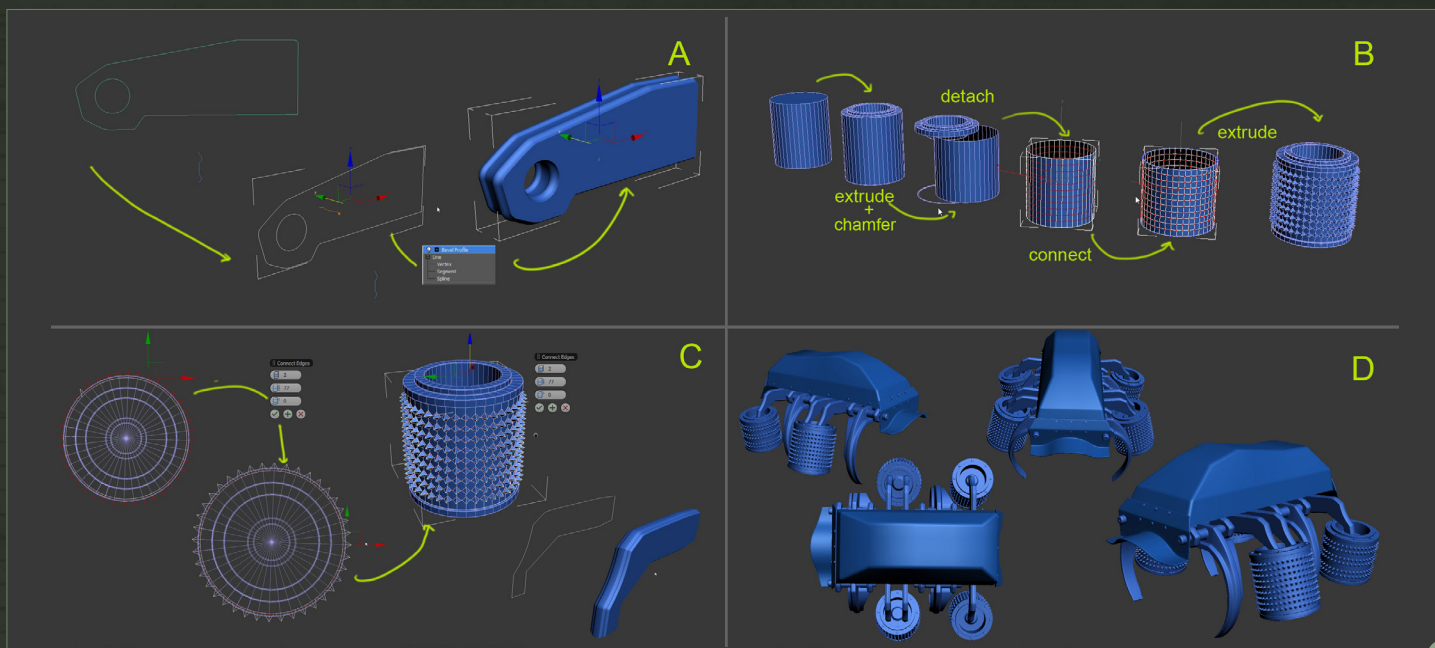
Extrude. Select the edges, apply Connect, select the faces of the edge and apply Extrude. Then select the edges of the edges and apply Extrude, before re-selecting the faces and copying them (C).

Once the light is completed, the lens of the light can be put in place. Then use MeshSmooth and Subdivide, along with Shell, to make the lens fit snugly (D).

We continue with the modeling of the combine (Fig.11). Start with a box that we convert to an editable poly, and move and cut some



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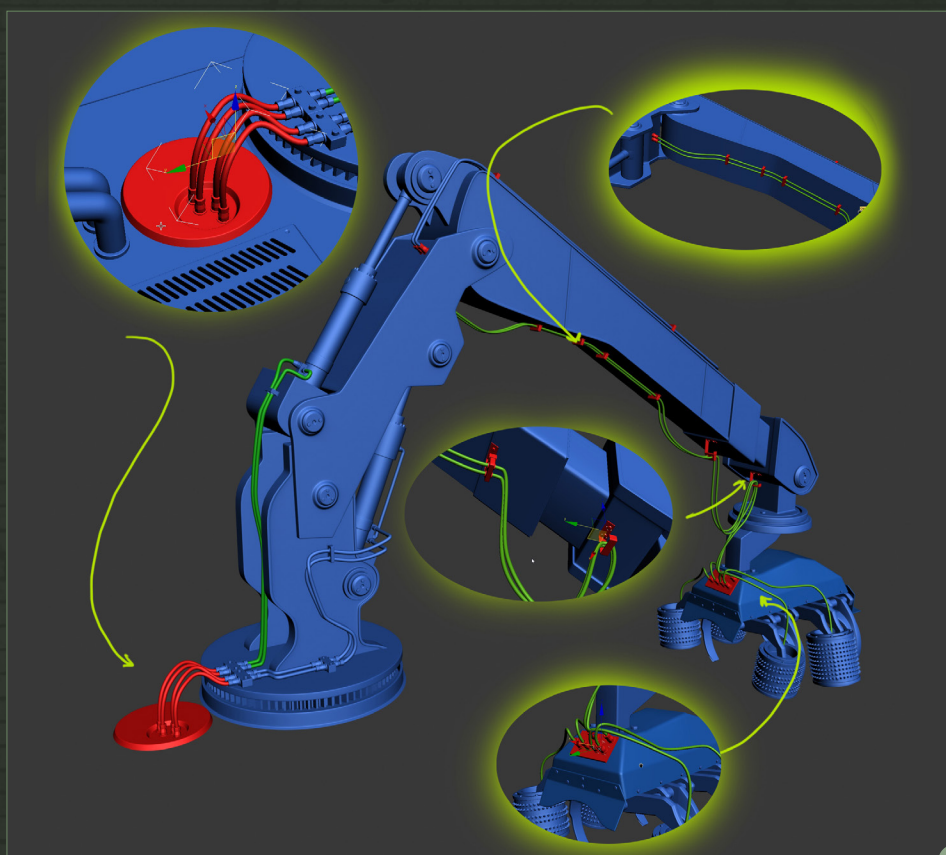
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vertices. Next we select the side edges and apply a chamfer (A). Use the same principles as previous parts to form this part: Extrude, Shell and Chamfer (B).

Take the vertices that are shown in the image and apply Chamfer. Then make some cuts, select the central face and with the GeoPoly tool, create a circular shape. With these selected faces apply Extrude and then Inset. We then place the previously-made piece on either side of the object, select the edges and apply Chamfer. Add a cylinder with a plane (C) and apply Extrude, Chamfer and Shell. Create the next piece and attach this one to the front (D).

We draw a spline with the shape that is displayed in the **Fig.12** and add a circle inside. We draw a second spline, which we will use as a guide, and take the first spline and add the Bevel Profile modifier. Go to the parameters and click to pick the profile button, select the second spline, and give its volume and shape to the first spline (A).

Place it together with the pieces we created previously. The next piece will be the toothed roller. We start from a cylinder of 40 sides, separate the top and bottom caps and give them shape. Then apply Extrude, separate the central



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part and with all selected edges, connect the 10 segments. We select all the vertices of the inner part and apply Extrude (B).

Select the edges of the peaks that we created earlier and connect them to the two segments, add the caps and apply MeshSmooth. Create another spline with the shape that is displayed

and apply Bevel Profile(C). Now put all the pieces in place, apply Symmetry to these elements, and add screws (D).

To finish the arm we add some more details, creating wiring with splines, connections and fasteners (**Fig.13**).

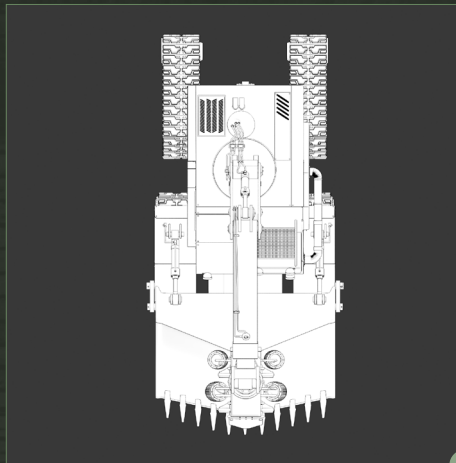
With this the modeling section is concluded! As I have demonstrated, with knowledge of just a few modeling techniques, you can achieve a pretty descent model.

For those interested, a blueprint of this model can be seen in **Fig.14 – 18** and the finished model with all its parts can be seen in **Fig.19**.

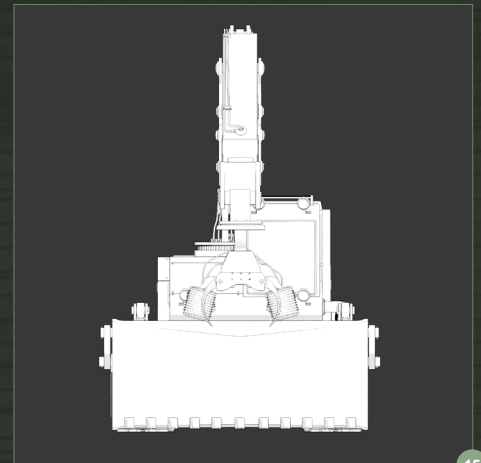
ARTURO GARCIA

Web: <http://dessga.cgsociety.org/gallery/>

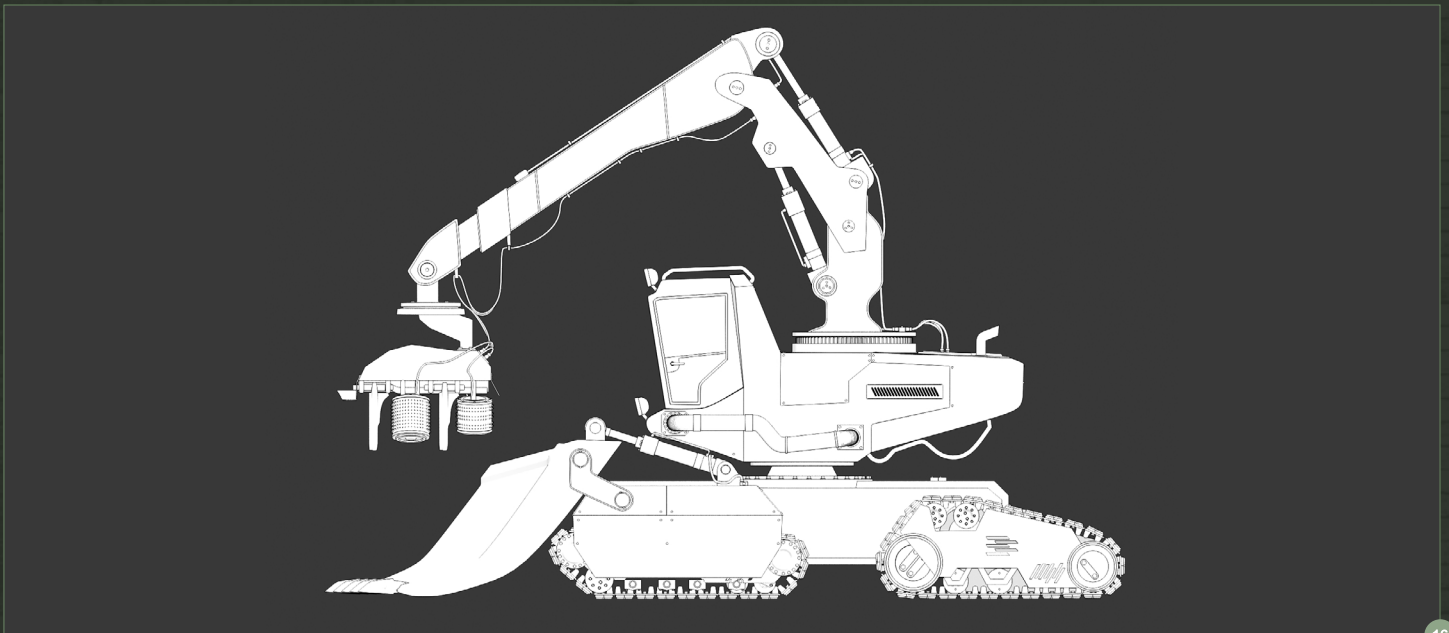
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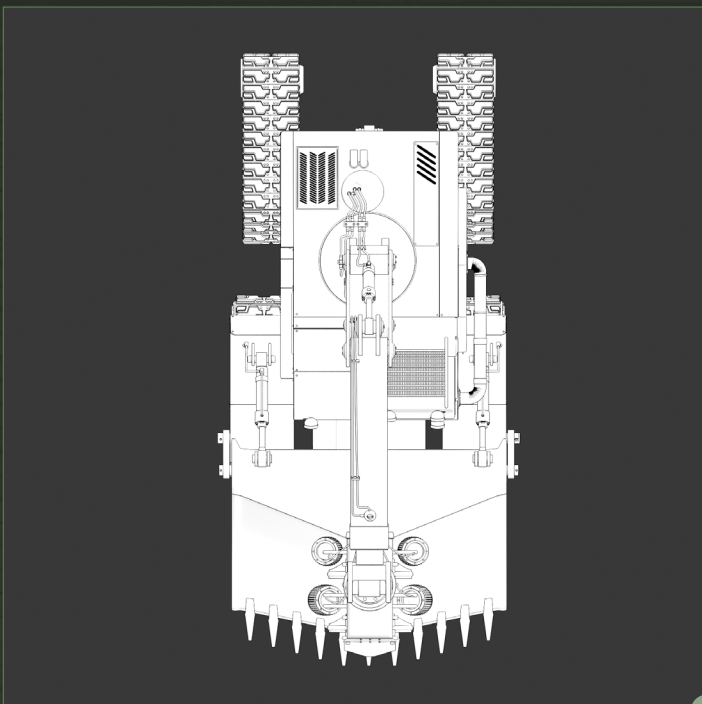
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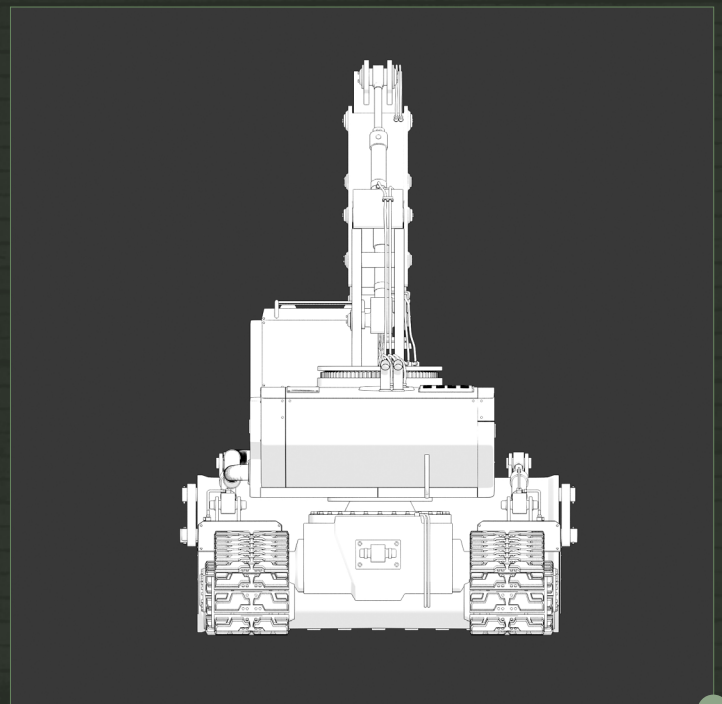
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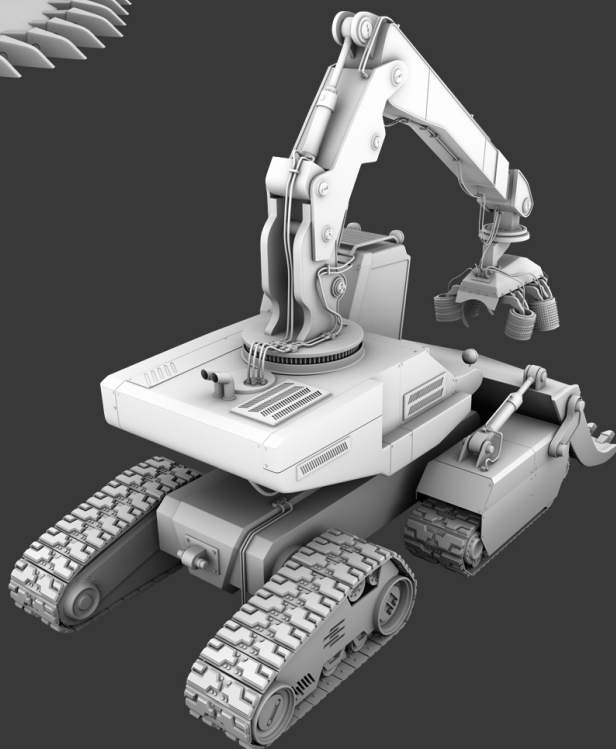
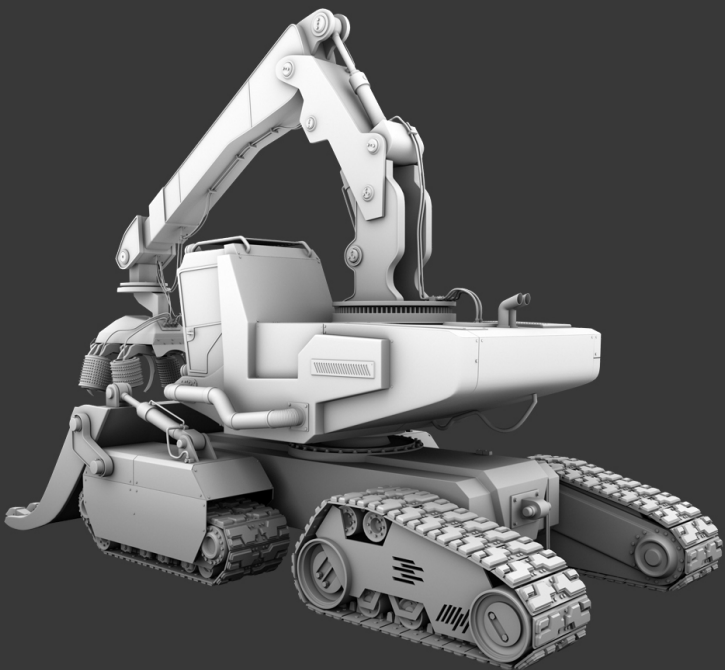
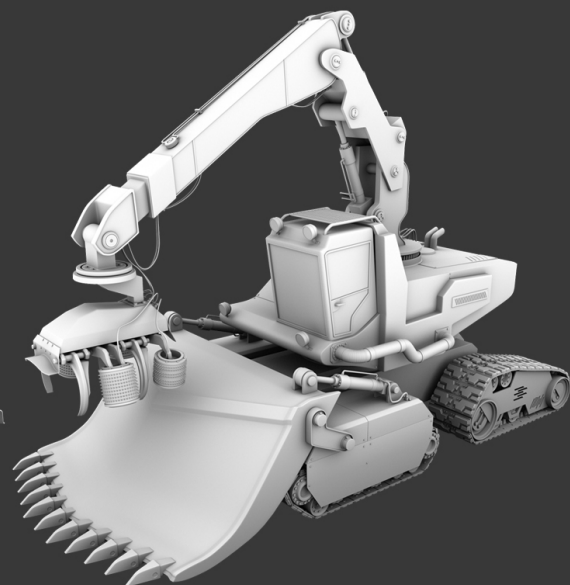
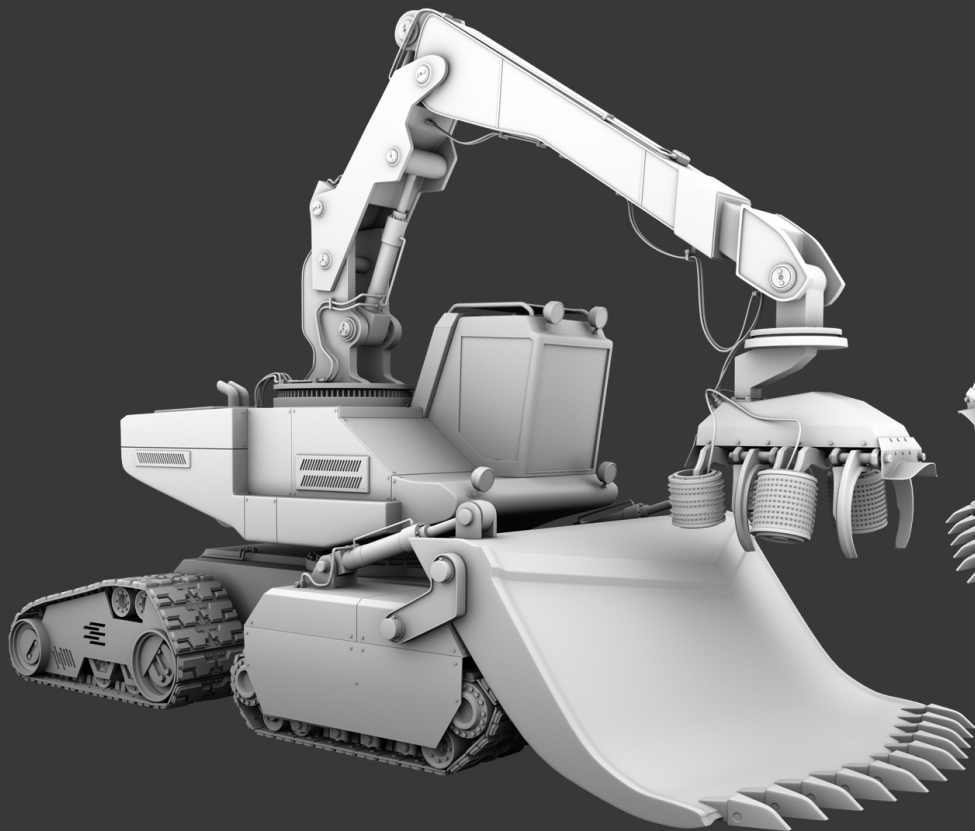
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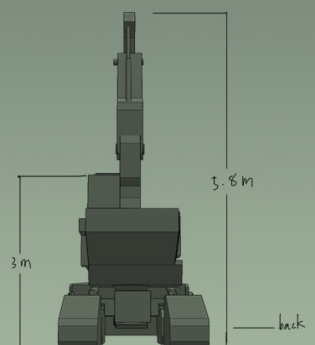
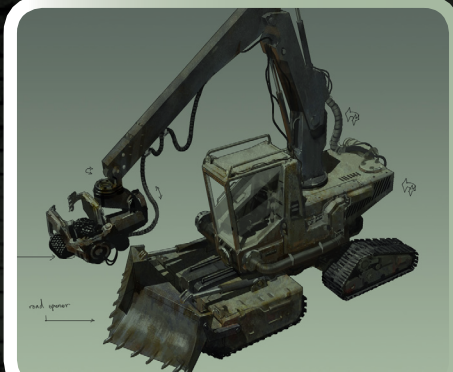
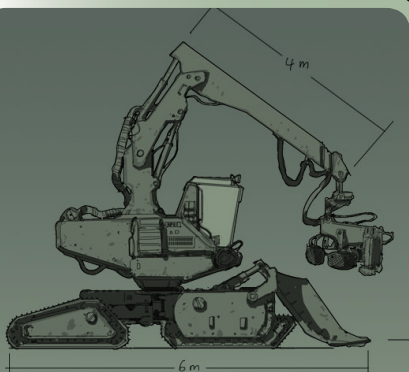
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BEGINNER'S GUIDE TO MODELING FUTURISTIC VEHICLES



Futuristic vehicles are a common subject matter in the CG world. However, in this series we will be approaching creating futuristic vehicles in a slightly different way. Our two amazing artists have been provided with a 2D concept and technical drawing of a destructive deforestation vehicle. Over the eight-part series they will detail a step-by-step guide on how to turn this 2D information into an accurate and exciting 3D model, from the initial modeling phase through to the final rendering.



CHAPTER 04

Software used: Maya

In the previous tutorial we concluded the modeling, working primarily on creating the edges of the base. In this chapter we are creating textures for our model.

To begin, we create the UV mapping to position our texture perfectly onto our 3D model. This will facilitate the development and take full advantage of the process of creating our texture, but first, what is UV mapping?

UV mapping is the 3D modeling process of making a 2D image representation of a 3D model. This process projects a texture map onto a 3D object. The letters U and V denote the axes of the 2D texture because X, Y and Z are already used to denote the axes of the 3D object in model space.

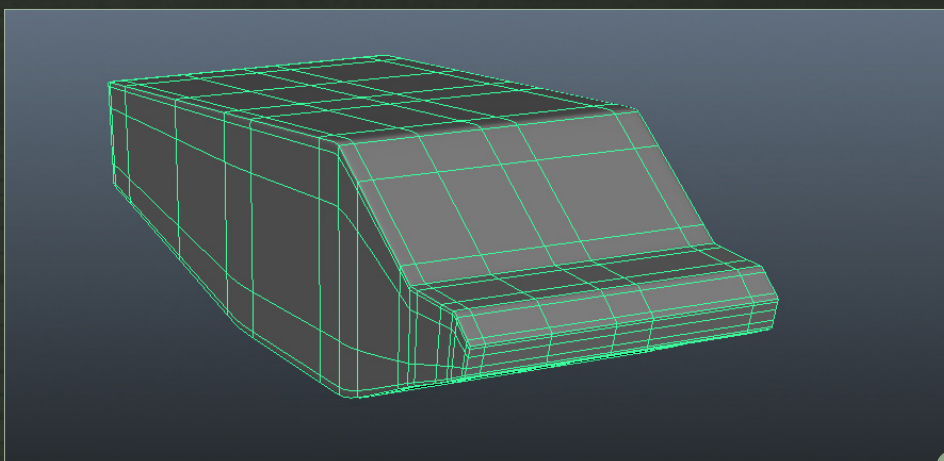
UV texturing allows polygons that make up a 3D object to be painted with color from an image. The image is called a UV texture map, but it's just an ordinary image. The UV mapping process involves assigning pixels in the image, to surface mappings on the polygon, which is usually done by programmatically copying a triangle-shaped piece of the image map and pasting it onto a triangle on the object.

UV is the alternative to XY; it only maps into a texture space rather than into the geometric space of the object. But the rendering calculation uses the UV texture coordinates to determine how to paint the three dimensional surface.

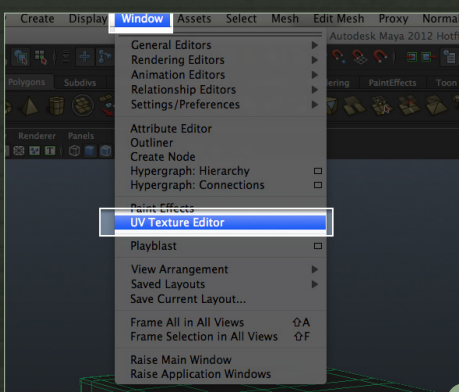
UV Mapping inside Maya

Within the software we will find multiple ways to perform this process, and there are a lot of tools to improve the finish of our UVs.

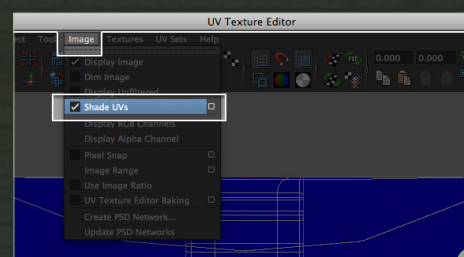
We begin with we're going to look at one of the easiest and extremely useful ways to texture basic shapes. First, we select our machine body



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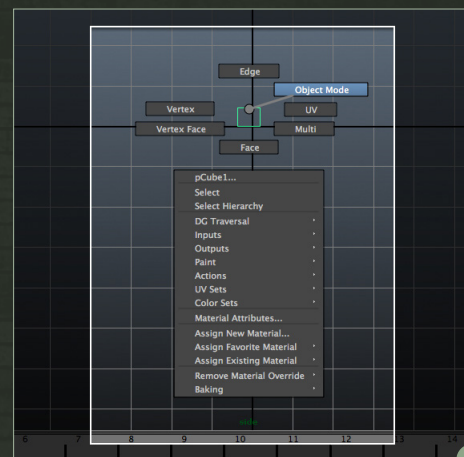
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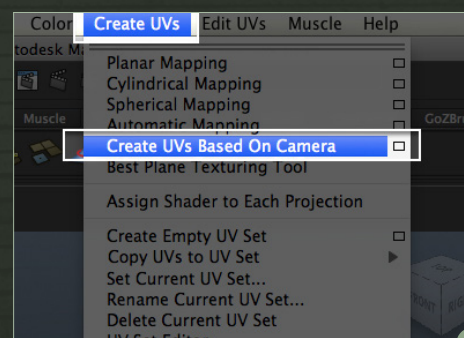
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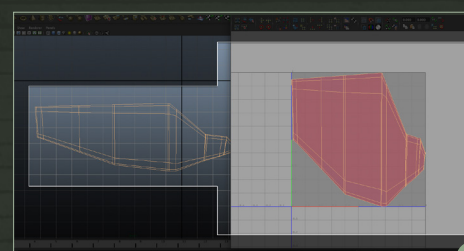
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(Fig.01). Then we go to Windows > UV Texture Editor (Fig.02). Here we search Image > Shade UVs and select it (Fig.03). This option will help us to visualize our object better.

Next we go to Polygons Mode (Fig.04) and select an orthographic view, which can be seen in Fig.05.

Then we go to Create UVs and select Create UVs Based On Camera (Fig.06). You can see the results of these settings in Fig.07.

Now if we click the right mouse button, we will see the option to select UVs (**Fig.08**). Press it and go to UV Texture Editor. There, select the Scale tool (or press R on the keyboard) to scale and edit our UV (**Fig.09**). You can modify the shape of our body to have a little more consistency (**Fig.10**). Rotate the faces, edges and move the vertices if you need to.

Go to the Top view (**Fig.11**). In the viewport, select the faces where we will create the UV mapping (**Fig.12**), Create UVs Based on Camera (**Fig.13**) and edit the UV points again (**Fig.14**).

We perform the same process for the other missing views (**Fig.15**).

Advantages of this Process

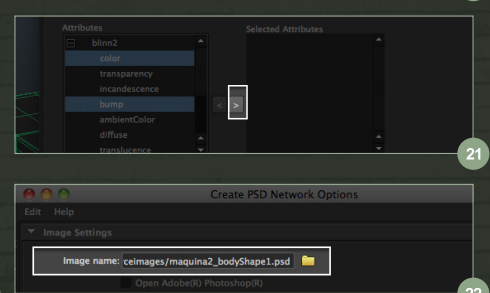
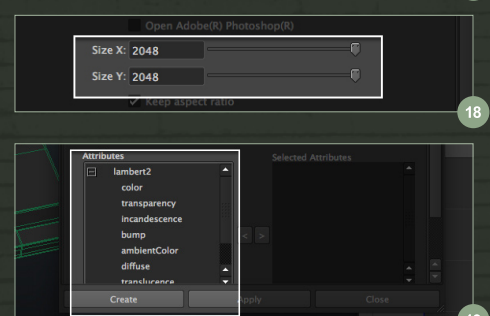
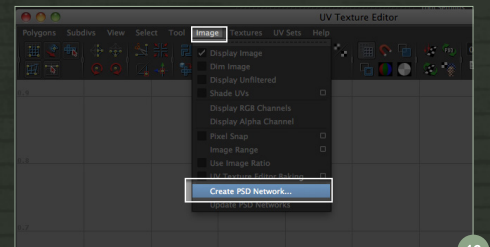
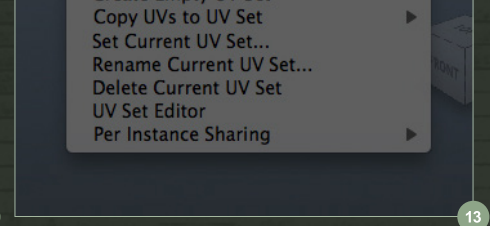
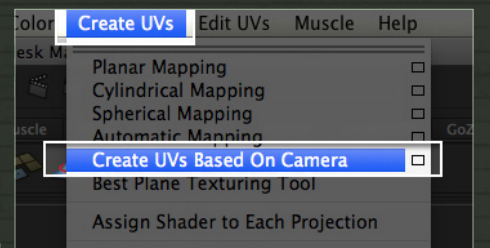
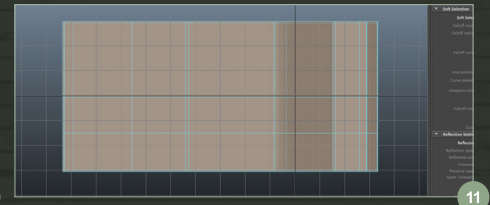
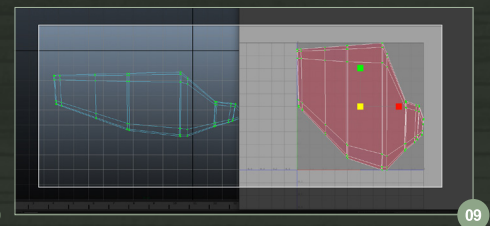
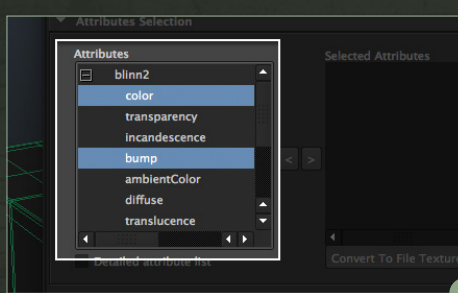
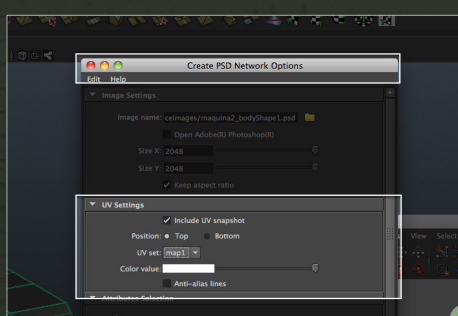
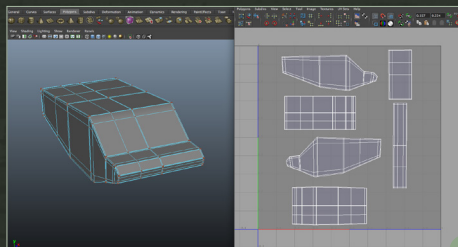
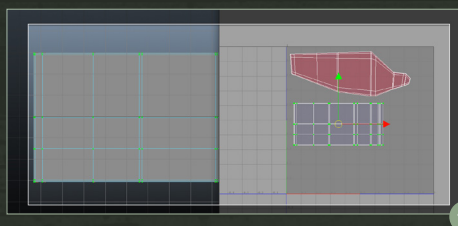
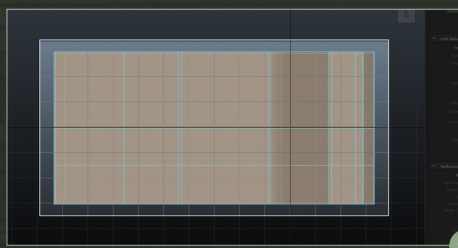
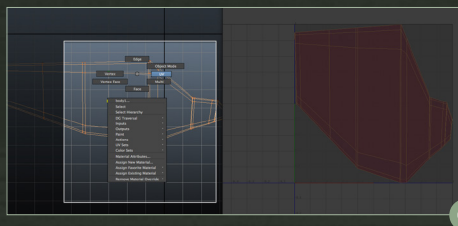
It is easy to visualize the placement of the details. Since you're looking through the final camera, it lets you add detail to where you need it for your shot and it's a really quick way to do UV mapping.

Once created, we must export our wireframe to work on our texture. Maya gives us a useful tool that gives us a link between this and Photoshop. Go to the UV Texture Editor > Image > Create PSD Network (**Fig.16**).

Then go to Create PSD Network Options > UV Settings > Include UV Snapshot (**Fig.17**).

Also increase the resolution of our texture to 2048 pixels, which is a good size to work in Maya (**Fig.18**).

In Attributes, select everything you need to create – in our case we have a blinn shader, so we use Color, Bump and Reflectivity Specular (**Fig.19**). Highlight these attributes in the left-hand side column (**Fig.20**), and press the right arrow to activate them (**Fig.21**). Finally, we choose the place where we wish to save the PSD file and press Create (**Fig.22**).



Texturing

A good tip to start with is to bake the Ambient Occlusion; this is to get a sense of where exactly the object is. It also guides us when we are making the rust and the details.

Setting up the Shader Network

Open the Hypershade window first, and from the Maya nodes list and MMB (middle mouse button), drag a Surface Shader node into the work area (Fig.23).

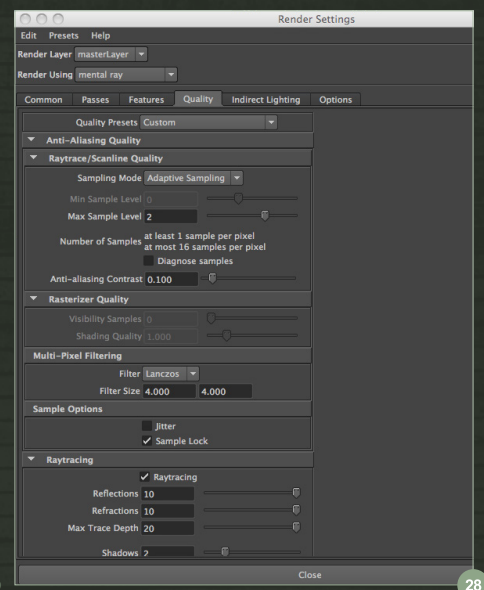
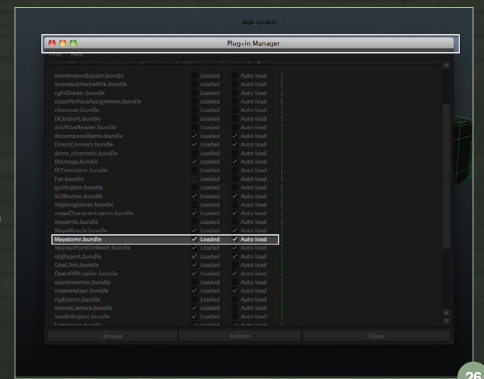
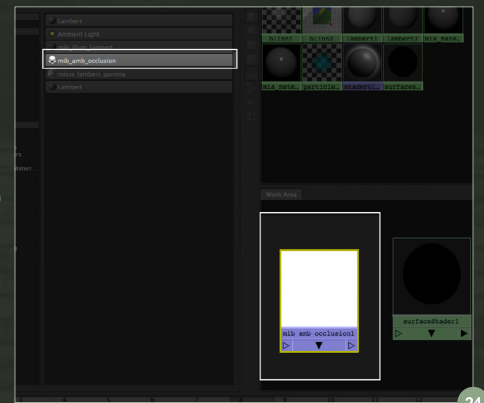
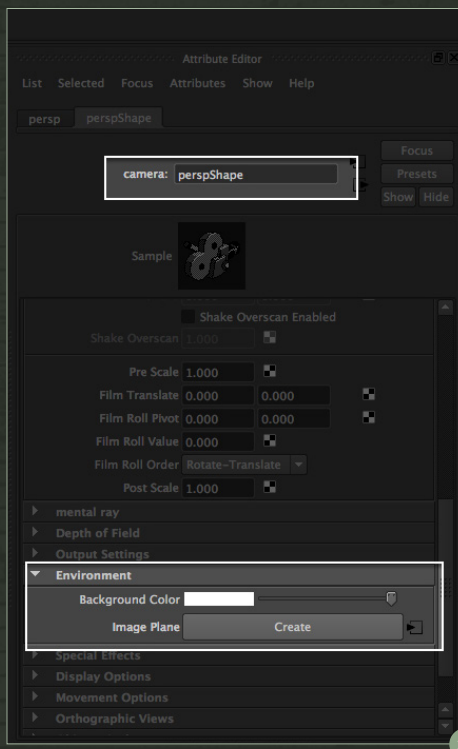
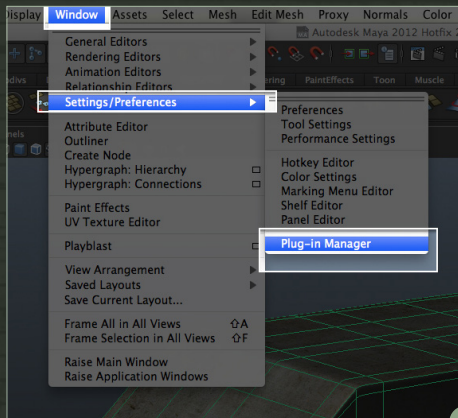
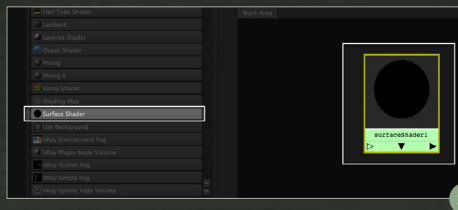
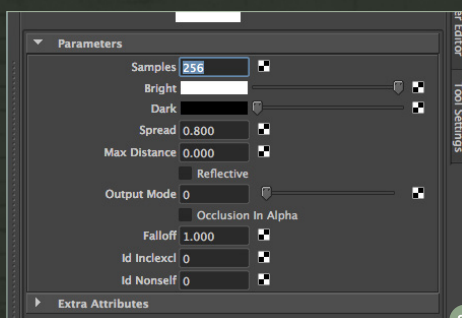
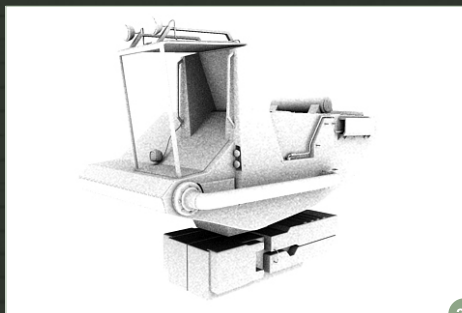
Then click on the Create Maya Nodes button at the top of the nodes list and change it to MentalRay nodes (Fig.24).

In the textures menu MMB + drag a mib_amb_occlusion node onto the work area.

If you can't find it, go to Window > Settings > Preferences > Plug-in Manager (Fig.25) and active Mayatmr.bundle (Fig.26).

Setting up your Scene

In order to get good results from ambient occlusion, the scene environment must be white. To do this open the Outliner window and select the perspShape camera. In the Attribute Editor, under the Environment tab, slide the Background Color to 100% white (Fig.27).



Now open the Render Globals window, and select mental ray as your renderer and Production as the Quality Preset. Now change the Multi-Pixel Filter to Lanczos (this will automatically change your Quality preset to Custom) (Fig.28).

Close the Render Globals window and assign the Surface Shader you have set up to your model. It should turn the model completely black.

Tweaking

Frame your model and hit Render. It should render quickly, look quite grainy and not very good at this stage, as you can see in Fig.29.

Now we need to tweak the settings a little. Open the Attribute Editor and then in the Hypershade window click on the Ambient Occlusion node. The Ambient Occlusion node's attributes will now appear in the Attribute Editor. The settings I use for most objects can be seen in Fig.30.

The first setting to change is Samples.

Increasing this will remove the grainy look, but will drastically increase render times. 256 Samples is good for most objects.

Do not change the Bright and Dark settings.

These affect how light/dark the occlusion value is, but it is a lot better to render with the default extremes and tweak them in Photoshop at a later stage if you need too.

The Spread setting affects how far the occlusion shadow spreads over the surface. Again, the default setting of 0.800 is good for most objects; any lower tends to be too extreme, and a high Spread can cause darkening problems when it is multiplied over your color layers in Photoshop (Fig.31).

Baking to Texture

Once you have the occlusion looking good in a render, the next stage is to bake it to a texture. First make sure you have specified a project folder. To do this select File > Project > Set, and select a file. This file is where your baked texture will automatically be saved. If you forget to set a project folder the bake will be saved in your default projects file in your My Documents folder.

Select your object in the viewport and hit the Convert and Close button to start baking the occlusion. When you do this Maya will not respond to any clicking, sometimes the screen will go blank and it generally looks like it has crashed, but don't worry it will come back eventually. This can take anywhere from a few minutes to a few hours depending on how complex the scene is (Fig.32).

Go to the location of our PSD file, and open it. If we check our file, what we will see are basically groups where we work on each attribute (Fig.33).

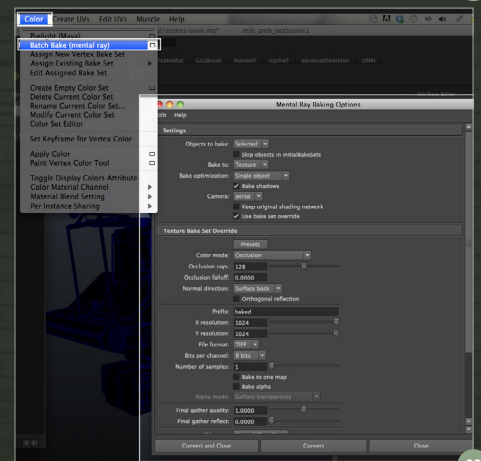
To begin working in our color, first we must hide Bump, Reflectivity and Specular Color (Fig.34). First of all we check our reference and select the right color for the body (Fig.35).

Once created, put the Ambient Occlusion on top of our Color Group in Multiply mode. You need to play with the opacity; sometimes a high value works perfectly, but in our case we need a low number of around 40 (Fig.36).

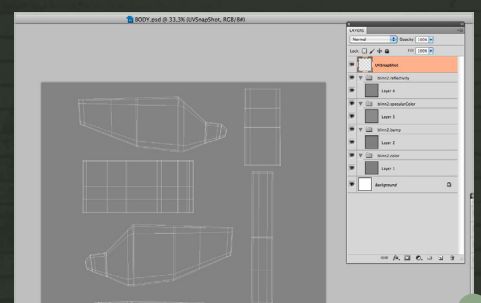
Now apply a little Noise to the texture. For this I like to work with real footage, because it gives a nice look to the texture. It also makes



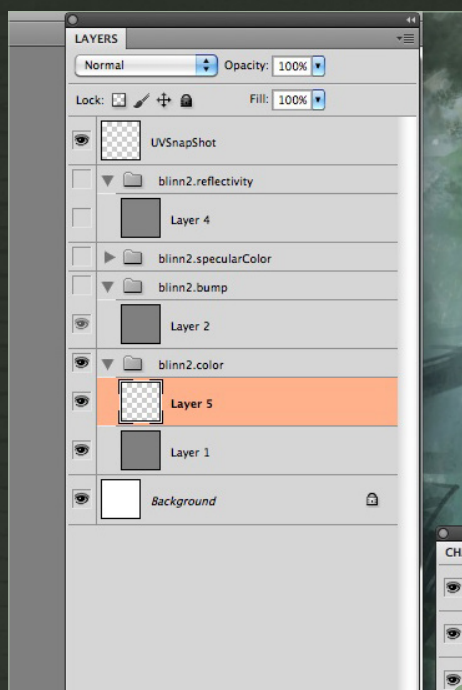
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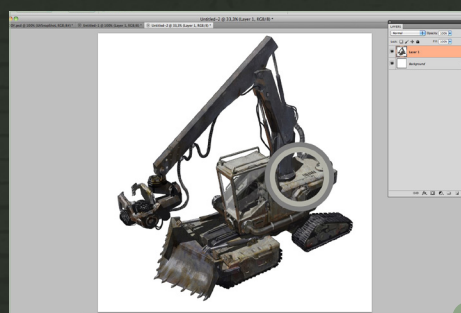
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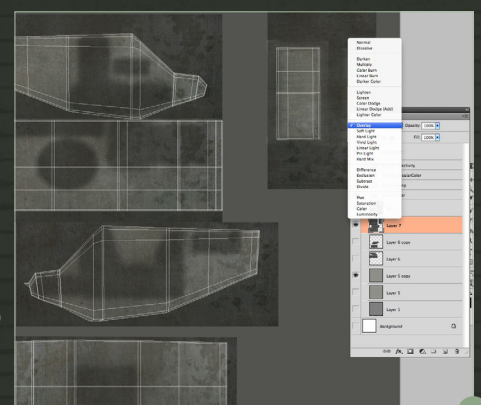
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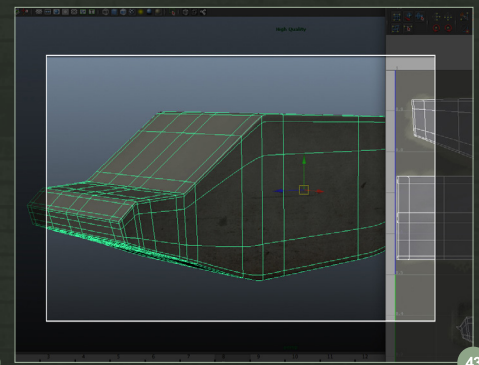
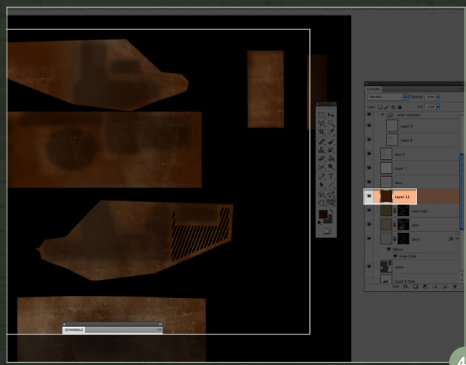
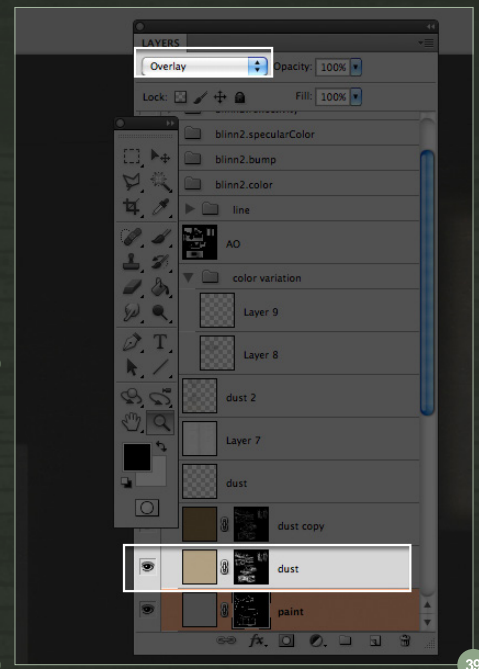
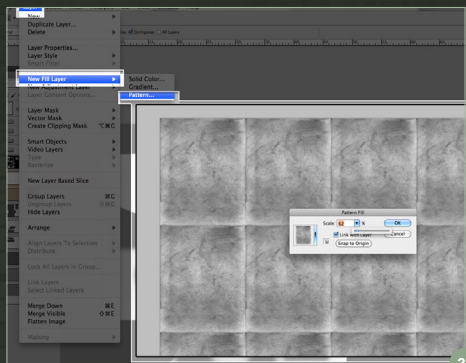
the appearance much more credible. In cases like this (metal texture) I like to use a low value opacity with the Overlay mode (Fig.37).

To add a little more detail, I create a pattern from a scratch texture. Go to Edit > Define pattern and press OK.

To apply it just go to Layer > New Fill Layer. When you finish, change the Blending mode to Multiply or Overlay, and change the opacity value to around 5 or 10 (**Fig.38**).

To add more detail, create a new layer, paint it with a sand color, change the blending mode to Overlay, and hide it with a black mask (**Fig.39**). Using a custom brush we paint with color over the mask where the dust begins to smudge the surface (**Fig.40**). Also, to speed up the process, we need to create some detail in the texture, and have more detail in the image; like the holes in **Fig.41**.

For the rust, you just need to repeat the dust process by changing the color to a dark red, and



using a custom brush start to paint where the ambient occlusion is darker (**Fig.42**).

To finish, save the document and go to Maya, select your object and press update PSD. The software will connect the texture to your mesh automatically (**Fig.43**).

To continue just repeat the same process for all the basic shapes in the scene. This concludes the first part of the texturing (**Fig.44**).

In the next chapter we will talk about the Bump, Normal and Reflective maps, and one of the most important points: the shader.

RENATO GONZALEZ
AGUILANTE

Web: <http://www.vimeo.com/renatogonzalez>

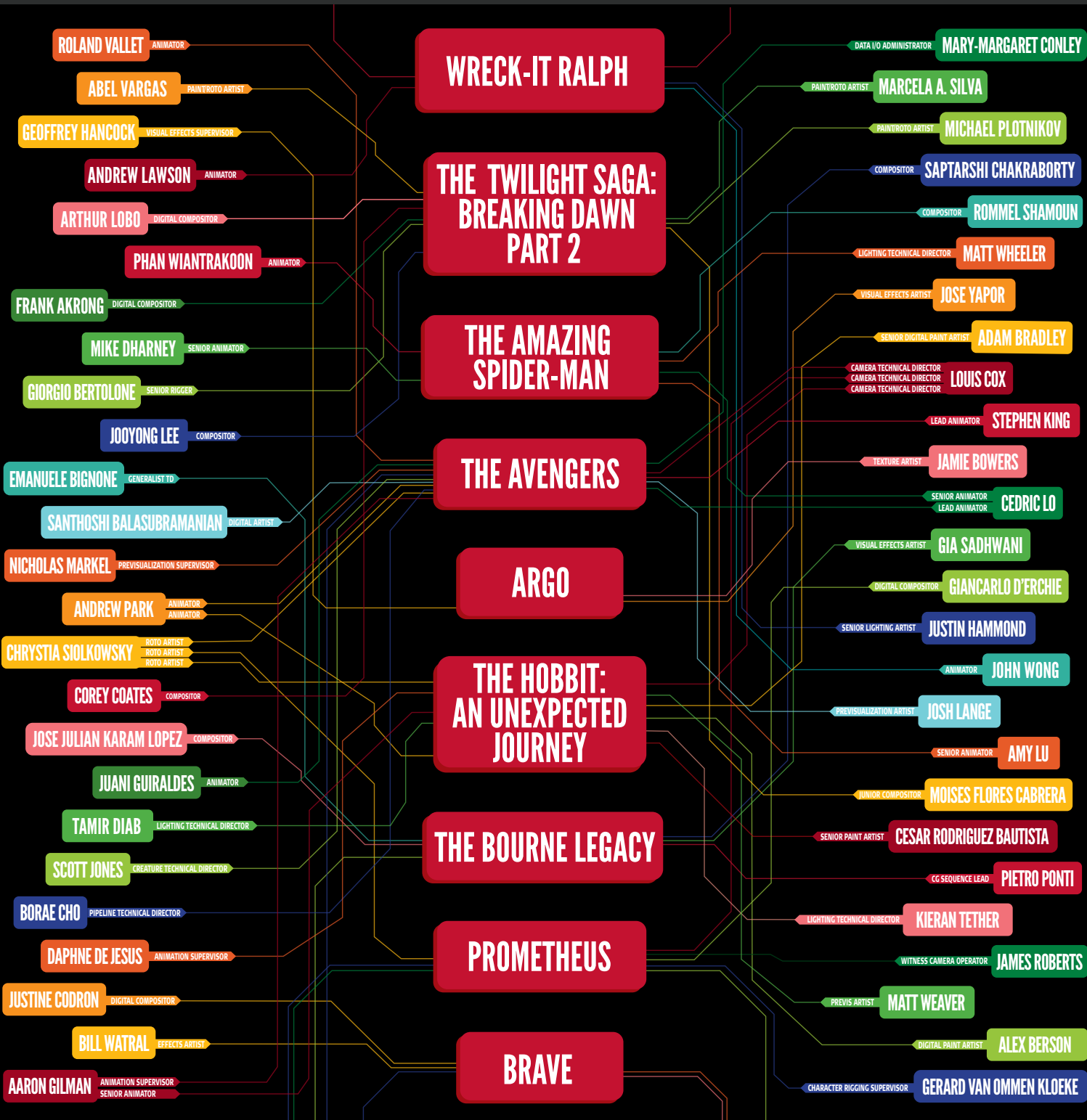
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FEMALE CHARACTER CREATION WITH ANDREW HICKINBOTTOM

We are bringing you a special treat in the form of a three-part tutorial series by Andrew Hickinbottom, a talented and experienced character modeler, with a penchant for stylized pin-up girls. In this series Andrew will cover modeling, UV'ing, texturing, lighting, creating the background and post-production. Andrew concludes his series this month with the final stages, including cloth simulation, fine-tuning, lighting, shading, rendering and compositing.



CHAPTER 03 – FINAL STAGES

Software used: 3ds Max, V-Ray and Photoshop

My name is Andrew Hickinbottom, and I am an experienced character modeler, with a preference for stylized pin-up characters.

Introduction

I will be using 3ds Max, V-Ray and Photoshop, though the steps can be adapted to suit your preferred software. Basic knowledge of modeling tools and general program functionality are required.

Catch-up

In the second part of the tutorial, I showed my steps as I progressed with the background, lighting and posing of Olivia. In this part, I will document the final stages, including cloth simulation, fine-tuning, lighting, shading, rendering and compositing.

Pose Refinement

I now needed to improve and lock down Olivia's pose. I tried a few variations of the established pose, such as a more dynamic one with her legs apart, and a more "pin-up" style one with her legs together. They looked a little forced and unnatural, and I liked the way she tapers and creates an interesting silhouette, so I relaxed her legs and hips to create the pose you see on the bottom right of **Fig.01**.

You will also see that I added a simple red curtain shape on the upper left of the composition. I showed a work-in-progress picture to a talented art director friend of mine, who suggested adding the curtain, as well as arching the foreground model to enhance the composition. I sorted out the girl in the foreground later on, but for now, I worked on this new curtain element.

Curtain Cloth

The new curtain element in the scene needed to be modeled. I wanted it to look natural, and



01

crumpled up at the bottom, so I decided to try a cloth simulation. This is something I don't have a lot of experience in, so it was a learning exercise for me.

A plane with many segments formed the curtain cloth, and a simple right-angled plane resembled the environment and acted as a collision object. A box with the top and bottom polygons deleted had a Shell modifier applied to give thickness, and was positioned with the curtain running through it. This object would create the effect of a cord pulling the curtain back.

I added a Cloth modifier to the curtain, set the object properties to Cloth, added the wall and box to the simulation list and made them collision objects. I added a Gravity Space Warp to the scene, and added it under the Cloth Forces section of the Cloth modifier. Finally, I went into the Cloth modifier's sub-object and assigned two groups. One was the top row of vertices that were set to Preserved, and the rest of them were set as Cloth, using a simple preset, like cotton.

The curtain pull box was keyframed to pull backwards and rise upwards over 40 frames,

with 20 frames extra at the end to let the simulation come to rest. I pressed the Simulate button, and hey presto – the curtain got pulled back by the box, gravity pulling it downwards (but pinning the top row of vertices), and the floor making it crumple up at the bottom.

You may have to experiment with different cloth presets, Friction values and Gravity strengths, as it is very unpredictable. I simulated it nearly a dozen times with different settings to get the results I wanted. When you are happy, delete the collision objects, collapse the Cloth modifier, add Shell for thickness, and a TurboSmooth.

Fig.02 shows the simulation objects, and what happened when I moved through the simulated frames.

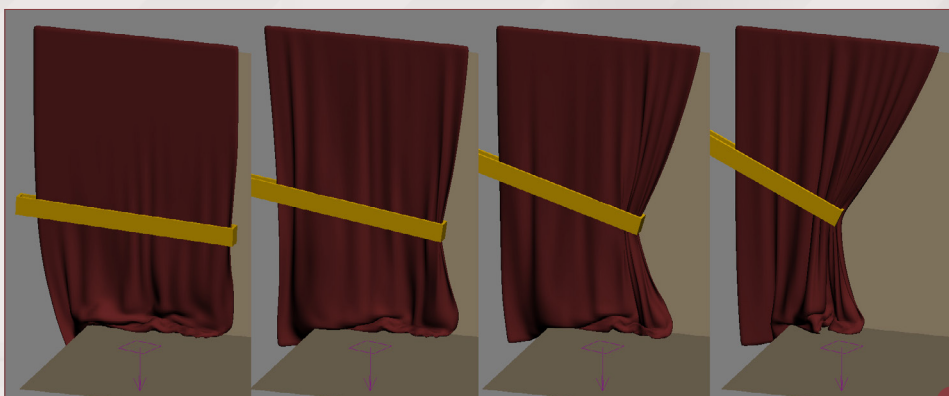
Easel Cloth

Using exactly the same methods as the curtain (but without pinning any of the vertices), I added a square paint rag, draped over one of the easel struts. This time, I dropped an angled piece of cloth over a cloned section of the easel, acting as a collision object. I adjusted the cloth preset, Gravity and the Cloth Object angle to get the effect I wanted; it took lots of attempts to get it to hang just right.

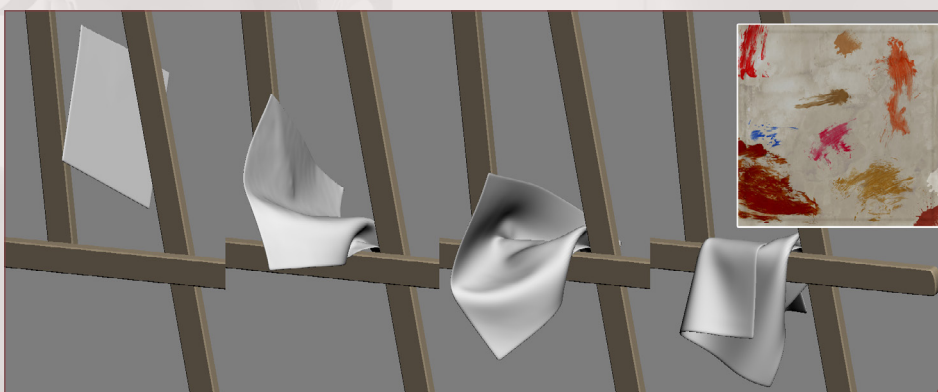
When I was done, I collapsed the stack, added a Shell modifier and TurboSmooth, and deleted the temporary collision object. **Fig.03** shows the simulation timeline. You can also see the texture map I added to it. It is a composite of individual smear textures I obtained from www.cgtextures.com. I also textured the easel with a colored version of the streaky wood texture I used for the specular of the floorboards.

Foreground Girl

Now it was time to get the girl in the foreground sorted out. I was using a placeholder in the form of a model I'd previously made, but now I was going to finish her properly. As she was only ever going to be seen from the waist up, from behind, in shadow, and out of focus, I was



02



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able to get away with re-using the Olivia model, rather than making a new one.

I merged in an earlier, rigged version of Olivia, when she still had her complete nude base geometry and deleted her clothes. Her texture layers were adjusted in Photoshop to resemble caucasian skin, and I started to position and pose her.

I took some of my art director friend's feedback on board, and tried to do something with her arm to mimic the curve of the curtain to create a balanced composition. **Fig.04** shows how I went

from Olivia to the foreground girl, as well as the early un-subdivided posed wireframe.

Foreground Girl Detailing

I decided on a pose for the foreground girl with her hand touching the back of her neck. It had more tension and allowed for some hand detail. As Olivia was never originally intended to be seen from behind, or without clothes, I had to model a proper bottom on the foreground girl, which was fairly simple to do.

I cut edges and moved vertices to form the buttocks and smoothed it all off. Soft Selection

manipulations were really handy here. The back of her hair was modeled properly and I added to it later. A crease going down her back was also added.

Fig.05 shows the chosen pose with the defined buttocks and back, and an un-subdivided wireframe.

Foreground Girl Cloth

I decided to add a draped cloth to cover up the foreground girl a little and mirror the curtain shape in the upper left corner. I started off with a densely segmented cylinder, with the top and bottom polys deleted. I positioned this around the posed girl's waist. The Cloth modifier was set up with a Gravity Space Warp and an armless clone of the girl's body mesh was used as a collision object.

Then I defined the Cloth modifier's groups by assigning one point to be preserved (the "pinch" point where she is holding it), and the rest to a Cloth Preset of silk. The simulation was run, and with several adjustments to the settings and placement, I got the draped effect I wanted.

Fig.06 shows the simulation as it occurs over the 20 frame period.

Foreground Girl Refinement

I collapsed the Cloth modifier, turning the simulated drape into an editable poly, and added Shell and TurboSmooth modifiers. I applied a white, delicate transparent material to it. Usually for illustration, I find that my skinning



05

isn't perfect, so when I'm happy with the pose, I turn the rigged model into an editable poly and work on the imperfections.

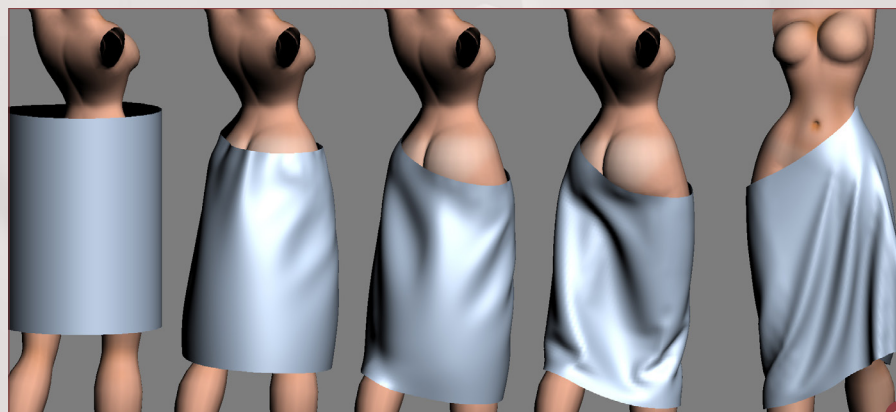
Using Soft Selection and Point Manipulation, I pumped up the shoulder and made the elbow pointier, as these areas lost some of their volume from the skin deformations. Some of Olivia's hair curls were repositioned to form an up do/ponytail. I wasn't worrying too much about these, as they would be out of focus slightly. Two small V-Ray lights were added in front of each side of her to boost the rim lighting and warmth a little.

You can see a render, wireframe and a before/after comparison of the arm/shoulder refinements in **Fig.07**.

Olivia Mesh Improvements

Next, I did the same thing with Olivia. I fine-tuned her pose (mainly her hands) and collapsed the modifier stack to an editable poly. I sharpen the elbows up and generally improved any areas where the skinned deformations weren't quite perfect.

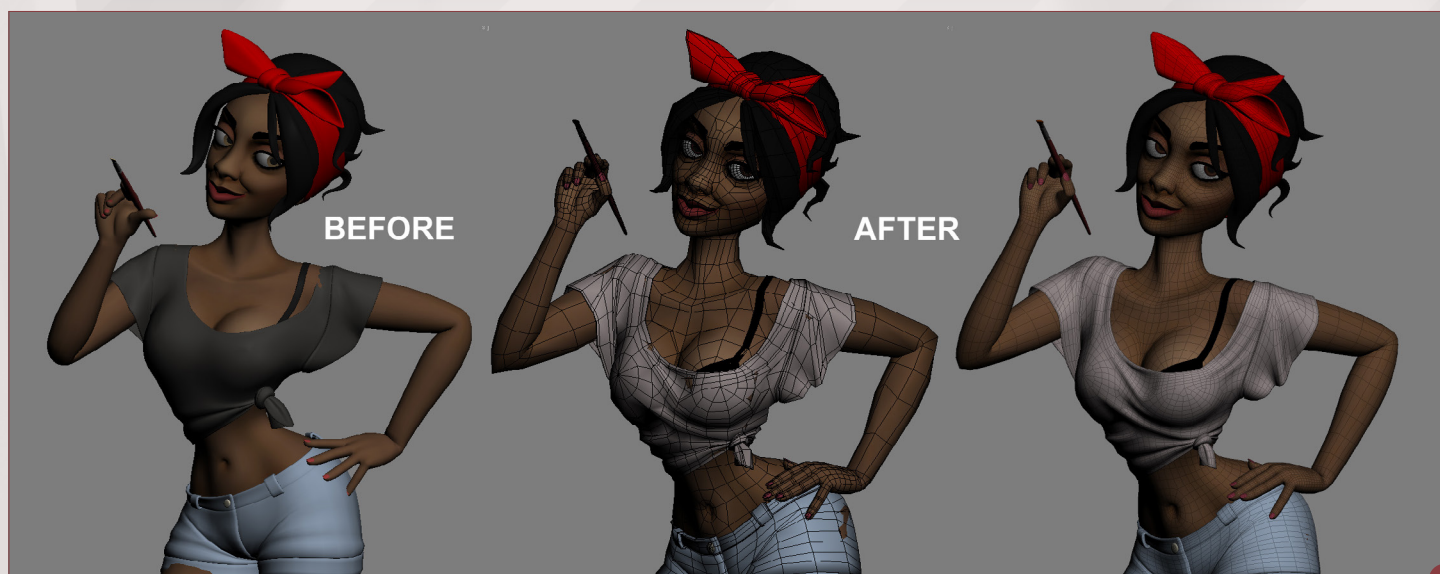
Her t-shirt needed some more detail, so I cut and extruded edges, moved points, inset polys,



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and generally employed a variety of modeling techniques to sculpt crease details into her shirt. I didn't worry about keeping a clean mesh, just as long as it looked good when subdivided.

I could have used ZBrush for this part, but I wanted to keep everything tidy, crisp, simple and within 3ds Max. I pulled the neck of her top down some more to make it a bit sexier, so I had to model the top of one of her bra cups.

Fig.08 shows before and after screen captures, highlighting the improvements to her elbows, hands and shirt.

Final Tweaks

I was nearly there now. I spent a while fine-tuning multiple aspects of the image, particularly the lighting and shaders.

The foreground model's robe was made a velvety, opaque red, to match the red of the curtain, and to complement the other touches of red in the image. The radiator had a crusty metal texture applied as a specular map. Two pieces of paper were placed at the foot of the easel. One has my signature stamp on, and the other has a quick sketch of what she could be seeing, which I did with my Wacom pen.

The paint rag was scaled down, and Olivia was moved slightly further away, to help center



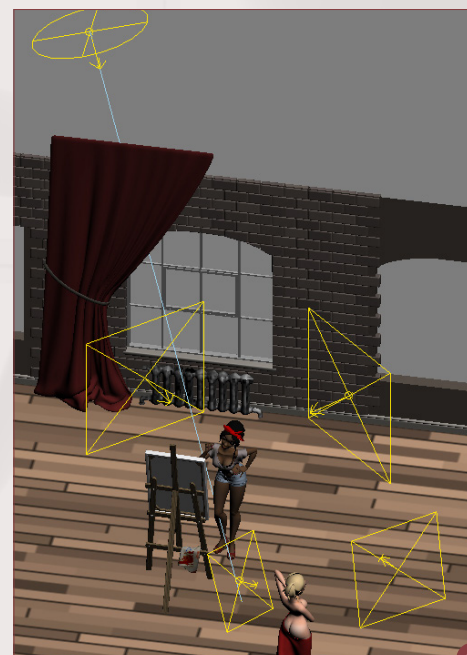
09

her in the composition. Finally, Olivia's face was tweaked slightly to make her nose less pronounced and cuter.

Fig.09 shows a final low quality preview render, and **Fig.10** shows the scene with the final lighting setup.

Rendering

You may have noticed that many of the work-in-progress renders were quite noisy. This is because I lowered the render settings to get quick preview renders. I'm not massively experienced with the intricacies of V-Ray's render settings, and I don't have a lot of space

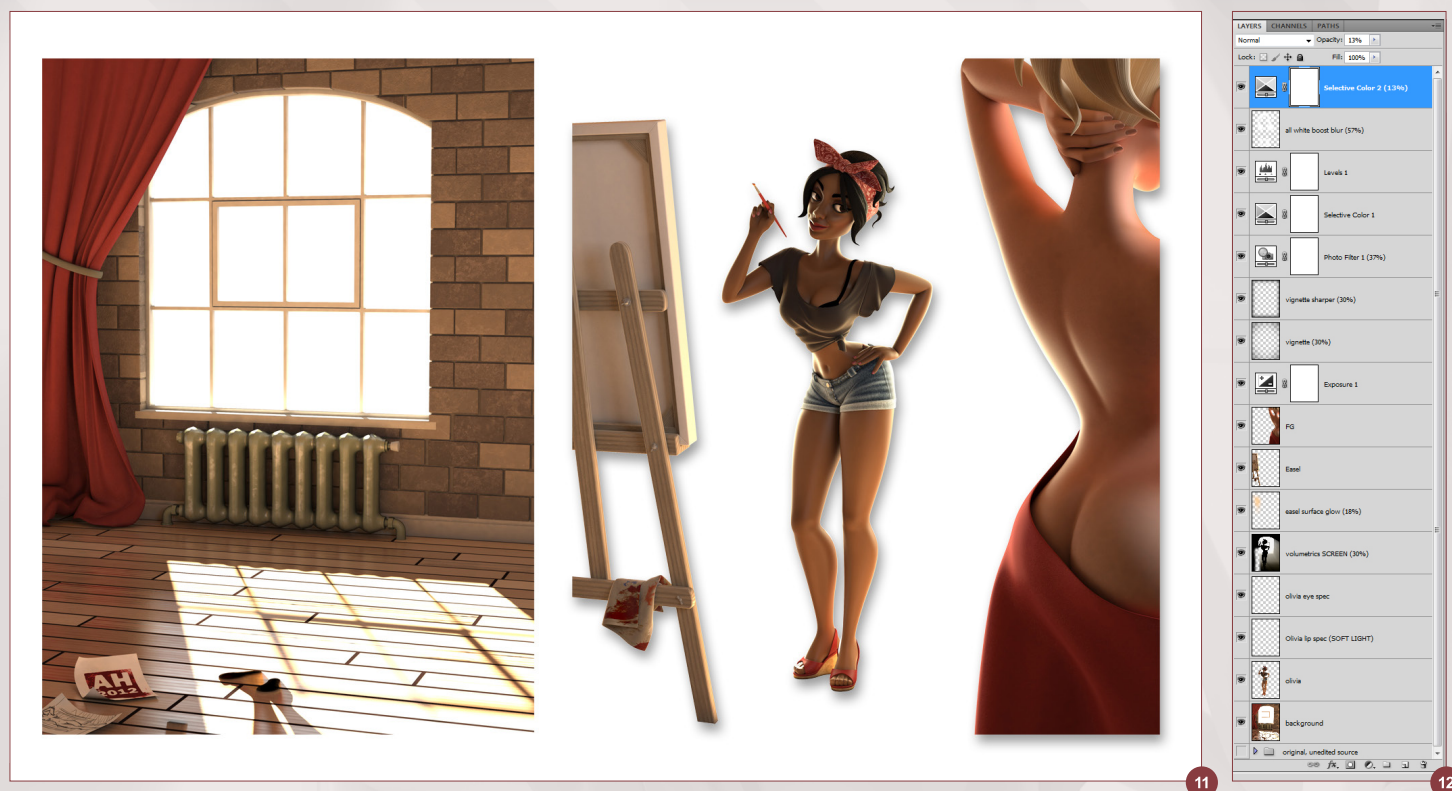


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to write about the hours of render setting tests I conducted, but in a nutshell, decreasing the Noise threshold in the DMC sampler to a value of 0.001 did the trick.

The Global Subdivisions Multiplier was set to 2, and the Indirect Illumination Irradiance Map was kept on a low quality preset. I chose a final render resolution of 2912 x 4000, which should be good for A3 size printing.

Due to the render times and the amount of post-processing I intended to do, I decided to break the image up into TGA layers with alpha channels. The background environment took



two and a half hours to render, the easel took one hour, the foreground girl took two and a half hours, and Olivia took five and a half hours! To make sure the environment responded as if the object was there (shadows, reflections, light bounce, etc.), I hid the elements from the scene by selecting the relevant objects and disabling the Visible to Camera checkbox in the right-click Object Properties menu.

Fig.11 shows the raw background, easel, Olivia and foreground render layers.

Compositing

It was time to bring all of these elements together in Photoshop. You can see a breakdown of the layers used in **Fig.12** and follow my steps.

Starting with the background image, I used Image > Apply Image on new layers to bring in the easel, Olivia and foreground elements. Each layer had Layer > Matting > Remove White Matte applied to remove the tiny white fringes around them. If you were to render them out on a black background, use Remove Black Matte, and in other cases, just use Defringe.

Some minor cleanup was done on Olivia's face, such as some fake specular highlights to make her lips and eyes pop. Keeping a copy of the original layers in case of a mistake, I then used the Iris Blur tool (new to Photoshop CS6) to defocus parts of each layer to create a fake depth-of-field effect. If you don't have CS6, a similar effect can be made by masking and using the Gaussian Blur tool.

A separate black and white layer was specially rendered in 3ds Max, with some volumetric light coming through the window, but it is so subtle and hard to make out that I won't spend time going into how I set that up. A subtle orange glow was positioned behind the easel, and I used an Exposure adjustment layer to brighten the image.

Two layers of slight vignettes (dark edges) were painted, with one more spread out than the other. A Photo Filter adjustment layer gave it a slightly warmer tone, and a Selective Color layer applied to the black channels of the image tinted it slightly to give it a more photographic look.

A slight level boost was added, and the stronger white areas of the image were selected. I did this by applying levels on a desaturated copy of the whole image, then Ctrl + selecting the RGB channel. This new selection was filled white on a new layer, then Gaussian blurred. This layer helped soften and lighten the whole image. Finally, a Selective Color adjustment was applied to remove some yellow from the neutral colors and make the image slightly colder.

Conclusion

All done! I'm pleased with how it turned out, especially with the inclusion of unfamiliar things like SSS shaders and cloth simulation. It turned out to be a bit less stylized than my original vision, but it still works well as a whole (**Fig.13**).

I hope this tutorial was useful to you, and that you got a better insight into the way I work and learned some new techniques while you were reading!

ANDREW HICKINBOTTOM

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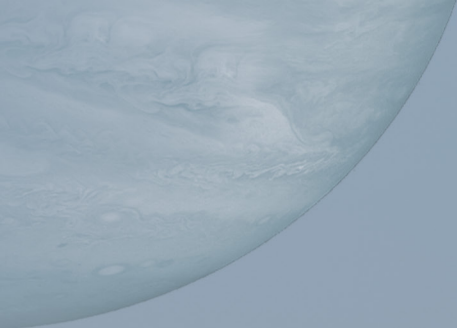
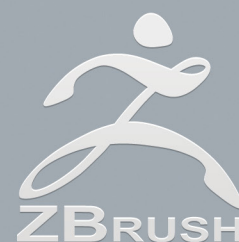


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THE SUBMARINE PEN

CHAPTER 07 - DRAFT LIGHTING & PLACING DECALS

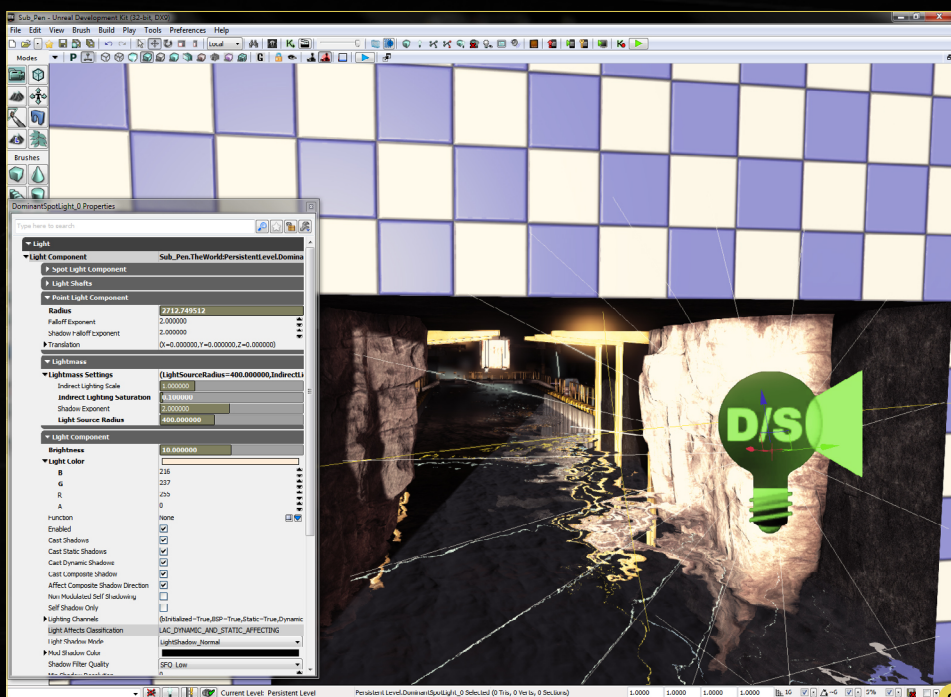
CHAPTER 07 – DRAFT LIGHTING & PLACING DECALS

Software used: UDK, 3ds Max and Photoshop

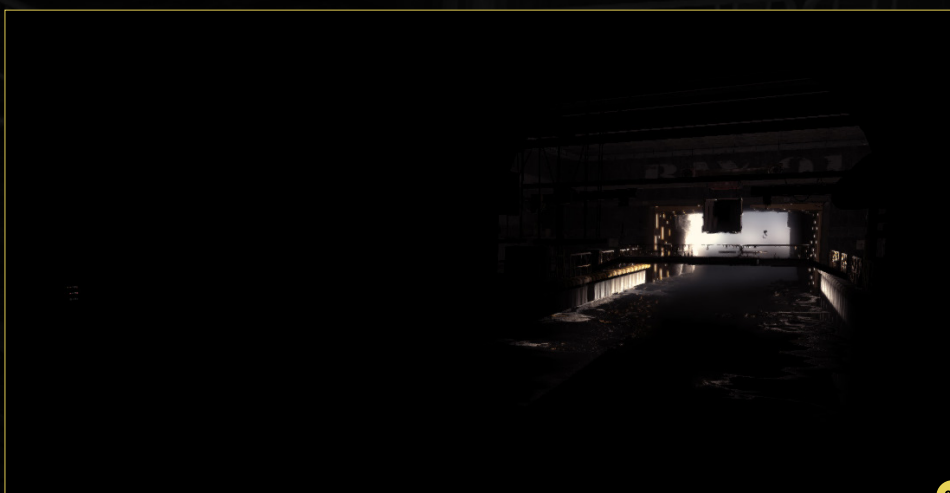
Welcome to the seventh part of my tutorial series in which I'm guiding you through the creation of an environment built in the games engine UDK, from the concept to the completion. This is an intermediate level tutorial and you should have at least basic knowledge of the software used. This tutorial is about the bigger picture of creating an environment; I won't be focusing on creating an amazing asset, instead I will be giving an overview of the process of creating the whole environment.

In the last chapter we finalised the layout of all of our assets within the environment. We are now ready to start the draft lighting phase and I will also show you how to place decals to add that extra level of detail to the environment.

So let's start a first pass on the lighting. I have deleted all of the temporary lights from the scene, so we have a blank environment to work with and no interference from any other light source. I want to start to get a feel for the mood of this environment now, so I will begin with the sun.



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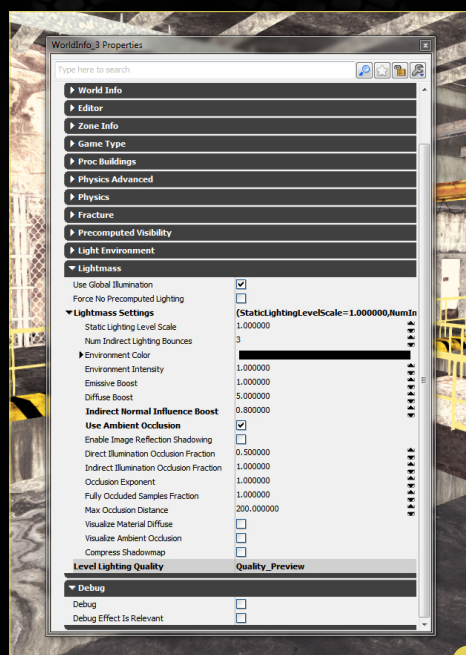
Fig.01 shows a spot light that I have placed outside the sub-pen entrance. I have aimed the light into the cave and slightly to the right. This will make the sunlight enter the sub-pen at a more interesting angle and cast light onto many surfaces. You can also see the light settings in this image. I have used a Brightness of 10 and a suitable Light Color for the sun. I have also made sure the Radius setting is large enough to encompass the surfaces I want the light to hit.

Fig.02 shows a quick light calculation. You can see the light entering the cave entrance to the left, and hitting the water and the platform surfaces. Also the light is catching the railings; this will give us some nice specular highlights.

This image also shows us a problem: the light isn't acting in a natural way. The light enters the cave, but stops once it hits the surfaces. Light doesn't act this way; light usually bounces once it hits a surface and provides indirect illumination, which lights the surrounding areas.

UDK can reproduce this effect quite easily by enabling Global Illumination in the Lightmass settings in the WorldInfo_3 Properties located in the View menu, which is shown in **Fig.03**.

This will increase the light calculation process by some time, so it is always worth setting your calculations to preview settings as you build up your lighting to make the task a lot easier and quicker to deal with.



03



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Fig.04 shows the same view, but with Global Illumination enabled. Now you can see that without adding extra lights to the scene, there is light filtering down through the dark areas of the environment, from the main sun light we placed earlier.

Fig.05 shows a close up shot of the sun hitting the platform and railings.

Now we have the natural lighting setup, it's time to add some more interesting interior lighting. So in the backroom of the sub-pen I added a red omni light as a test, to see if it worked as part of the composition. By doing this I didn't waste time setting up intricate lighting, only to find I didn't like the end result.

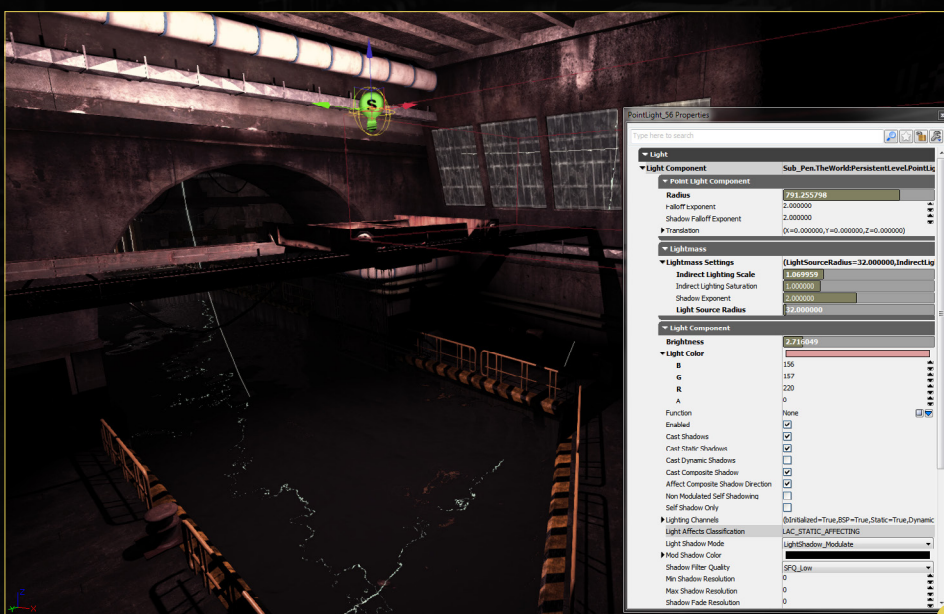
Fig.06 shows the red omni light floating in the backroom of the sub-pen; also shown are the settings I used. I made sure the radius of the light was large enough to hit the areas of the environment I wanted it to. I kept the brightness of the light quite dull, as I didn't want it to overpower the atmosphere of the environment.

Now that we have the sun light at the start of the environment and a red light at the end, we have an area in the middle that is too dark. This area should be lit with florescent lighting, so to simulate this I added a larger omni light that was large enough to light the dark area, but not too large that it interfered with the sun light and the red omni light too much.

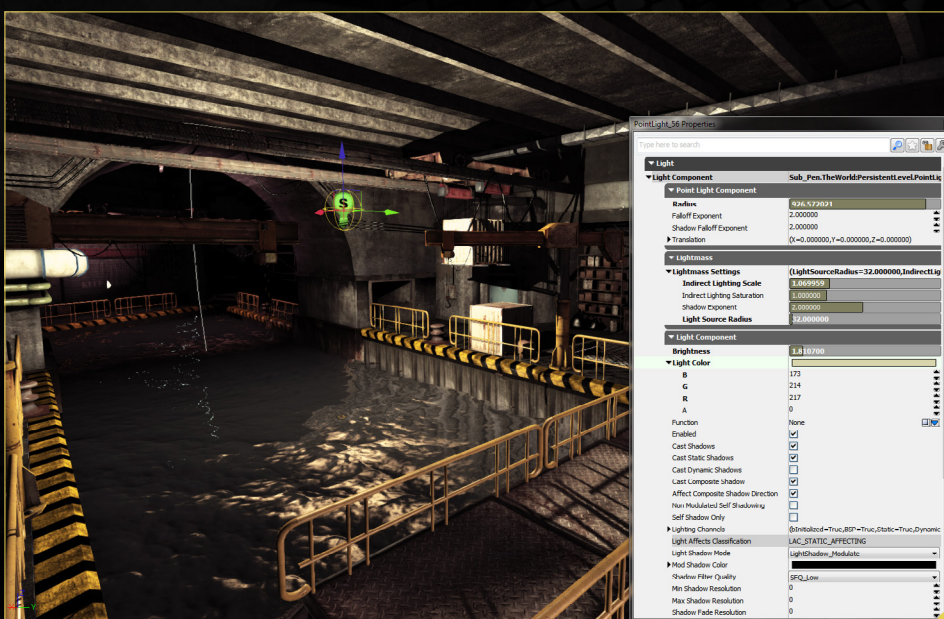
Fig.07 shows this light placed in the scene and its settings. I kept the light's Brightness setting low, so it didn't overpower the other lights in the scene.



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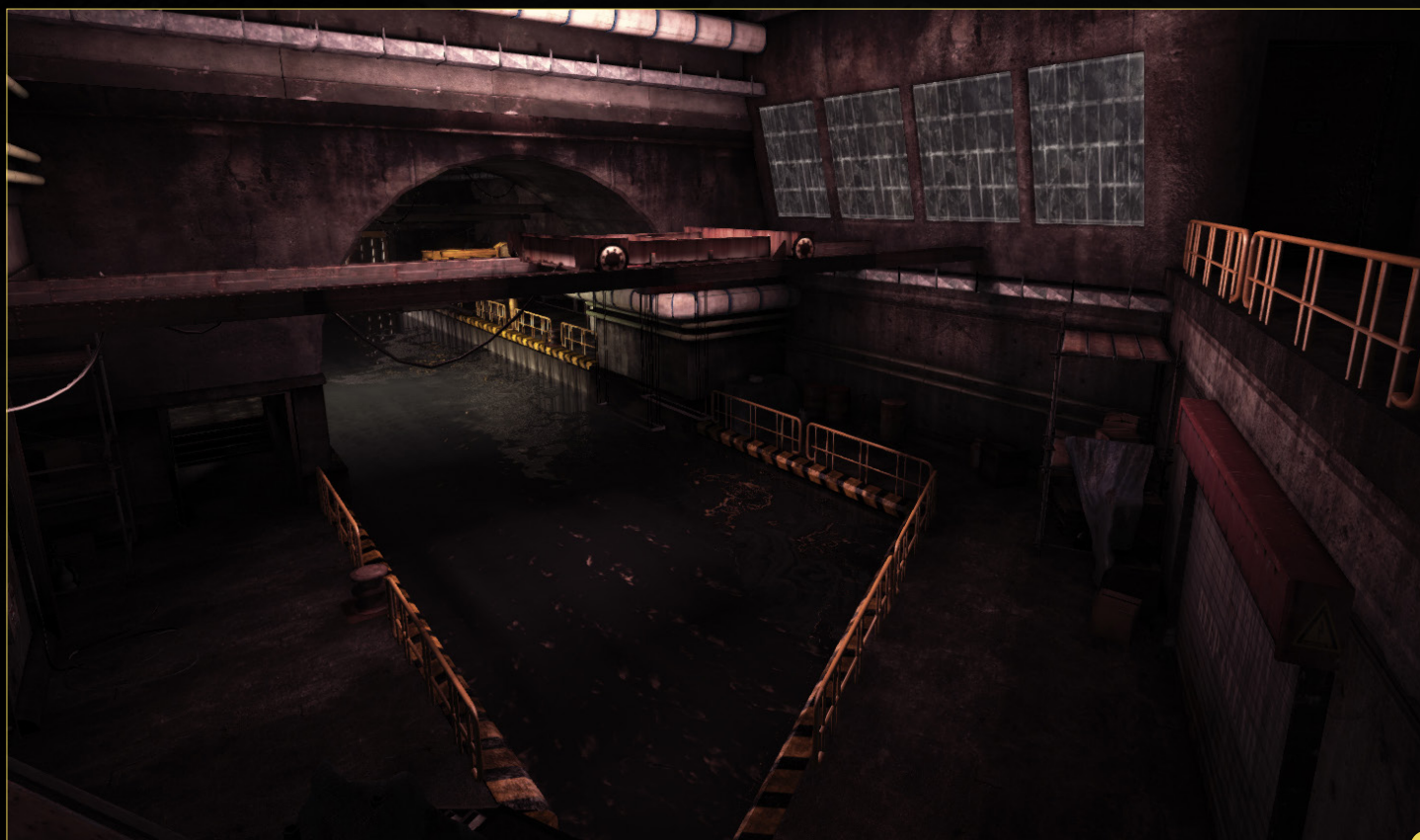
With the lights now set up, I previewed the light calculation, **Fig.08 – 09** show the results. I think the middle area is a little too bright and don't like the yellow colour as much, so I will change this later on. The red area I do like and I think I will continue to polish the area with this colour scheme, as I think it will be a great contrast to the other area and the natural lighting. As this is a sub-pen and can be quite dangerous a red lit area is a good way to show danger.

I'm happy to leave the lighting for the moment as I'm quite happy with it as it is, I will fix areas and add further interior lighting in the next chapter to finish the final lighting pass.

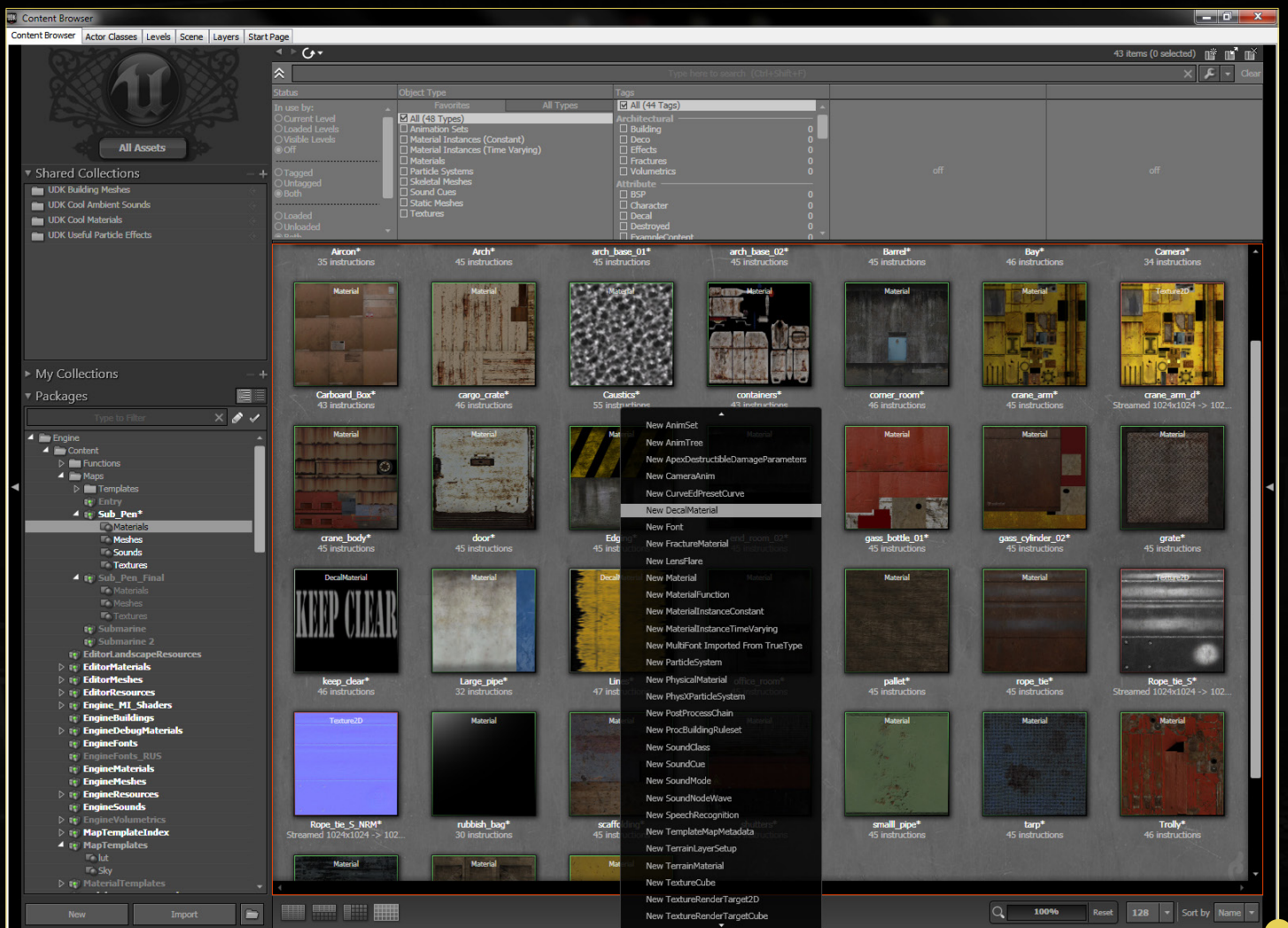
Now we can see the areas of the environment all lit, it's noticeable that some of the walls and floors are repetitive and plain. We need to add some interest to the areas, so they don't stand out. I did this by adding Decals to the scene. Decals are a way of placing textures onto a surface that are easy to manipulate. We can use Decals to add signage and painted lines to our walls and floors.



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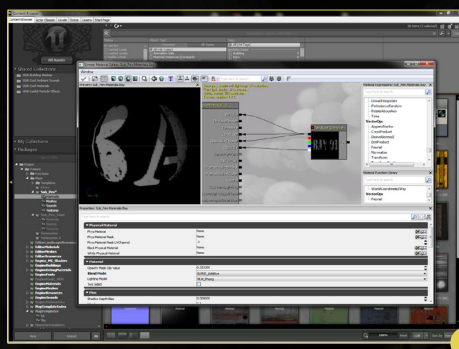


09



To create a Decal you need a special DecalMaterial, so in the Content Browser, right click in the Materials window and choose New DecalMaterial (Fig.10).

Fig.11 shows the material setup for use in the environment. The texture I used has an Alpha channel, which is hooked up to the Opacity slot of the Material.



With the new Material still selected switch to the Actor Classes tab in the Content Browser and select DecalActor. This is what we move around in the environment to place the Decal (Fig.12). Right click the area you would like the Decal to be placed and choose Add Decal Actor. Here, this will place the Decal with the already selected Material we created and applied to the Actor. This Decal Actor can now be scaled and positioned in the correct place (Fig.13).

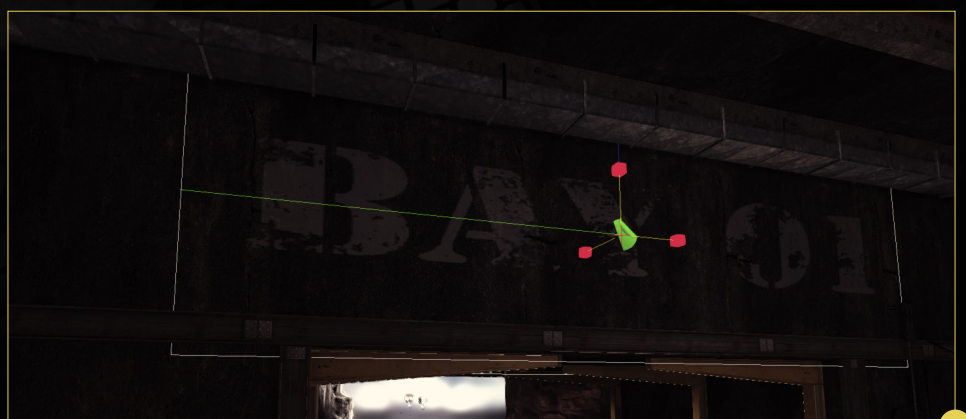


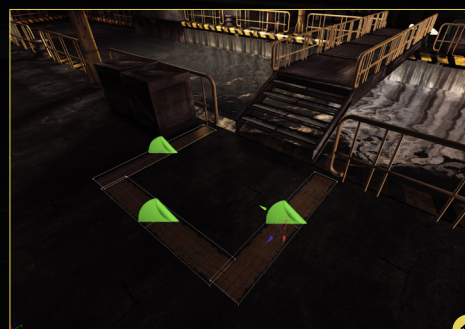
Fig.14 – 15 show further examples of how I used decals in the environment. I placed yellow painted lines around hazardous areas in the scene, as they would be in real life. This really is a good way of adding details and breaking up repeating textures on floors and walls.

So this is the final scene with all the art placed in its final position. The scene is ok as it is, but we need to add the last bit of polish to make it really stand out. The final lighting stage will add all the interior lights and take this scene to the next level and look a lot more professional (Fig.16 – 17).

So until the next chapter, keep experimenting with the lighting and try to come up with some more interesting layouts, thanks for reading.

ANDREW FINCH

Email: afinchy@gmail.com



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Q ZBRUSH QUADRUPEDS

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CHAPTER 04

Software used: ZBrush

Concept

The conceiving process is always very, very tricky for me. Most of the time I start my 3D model based on an idea or an image of the creature I want to do, which I build in my mind, as my drawing skills are terrible. But this time I decided to try it, as I wasn't sure what kind of creature I was going for. I spent two days drawing different kinds of quadrupeds, trying different animal species, insects, birds, mammals and pretty much anything that came to my mind (**Fig.01 – 02**).

Then suddenly the idea of a quadruped salamander hit me. It's a cute and disgusting creature at the same time, and would make a pretty cool quadruped creature (**Fig.03**).

I usually spend a lot of time researching about what I want to do, gathering as many references as I can to make my 3D work easier.

Base Mesh

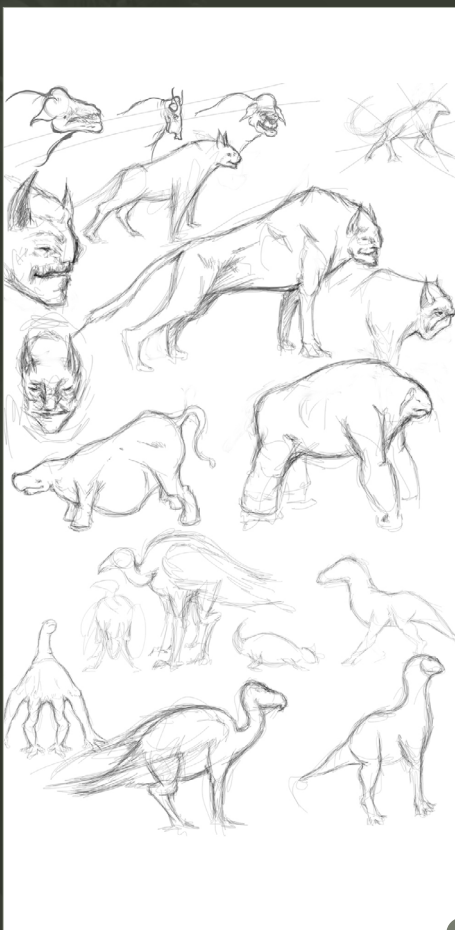
As with most of my personal and professional work, I start my character/creature with ZSpheres. These give me a nice and clean base mesh, with good edge loops and topology, which makes life a lot easier when modeling,



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unwrapping, painting and posing the model. I avoid using DynaMesh on the model, to keep my edge flow clean.

At this stage, I try to keep in mind my polygon distribution much more than the appearance of the structure. You can see that the head of my creature looks terrible right now, but that will provide me all the loops and poly density I need on the face (**Fig.04**).

I also divide my mesh into polygroups. Doing this makes the sculpting process flow better, as you can hide and unhide parts very quickly. It also makes the unwrapping more organized.

Sculpture

Now that I have my base mesh, it's fun time! With the base on its first subdivision level, I refine the structure (**Fig.05 – 06**). This is the most important stage for me. A well-structured

model is everything. It doesn't matter if you have a super-detailed model, with pores and wrinkles, if you don't have a good and realistic structure. Even on a cartoonish 3D fantasy character. The structure tells you if the model is "believable" or not, if it could really exist, or if it's just some digital clay thing standing there.

Still on my first subdivision level, I start to point where the muscles and visible bone joints are. I work each subdivision level as much as I can, not hurrying to get a really dense mesh to work with (Fig.07 – 08).

I always think on a three level pyramid. The base level is the structure, the mid level is the anatomy, functionality and personality, and the third level is the details.

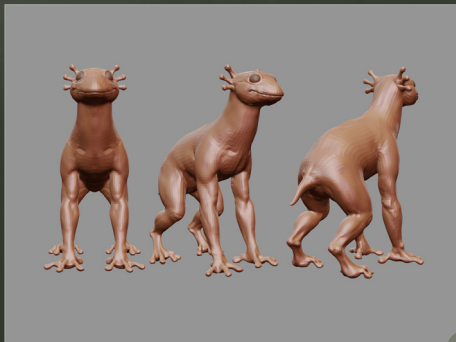
With all that in mind, the sculpting process is pretty straightforward. I use the Move brush a lot to block in the main shape and the basic anatomy on the lower subdivisions. Then I use the Standard, Dam Standard, Clay Buildup and Inflate brushes to define the bones, muscles and fat areas on the higher subdivisions (Fig.09 – 11).

Detailing

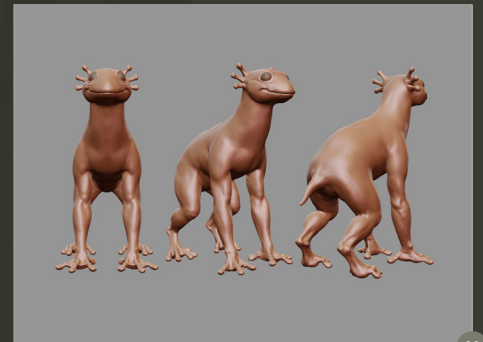
Now that I have my model structure and the anatomy refined, it's time to add some details. Dam Standard and Inflate brushes are my main tools here; I draw the wrinkles with Dam Standard and give volume to each one with the Inflate brush (Fig.12).



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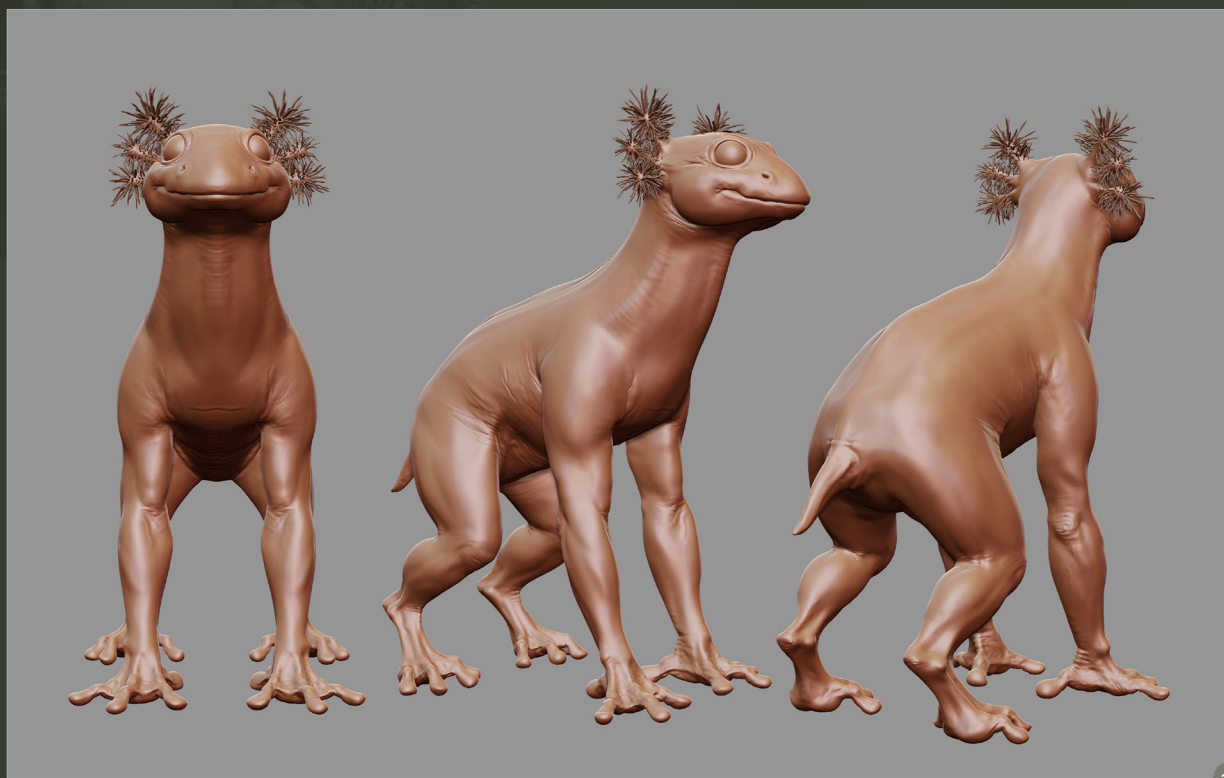
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I base this stage on several amphibious creatures, including the salamander. With the mask pen, I mask the structures of the head and using FiberMesh, I create the gills, which are part of the respiratory system of the real salamander (Fig.13 – 14).

Texturing

To start the texturing of my model, I use the UVMaster to open the UVs of the mesh (Fig.15). This gives you an incredible range of possibilities, such as baking the textures, painting them in Photoshop and rendering the model in different software or, in my case, enabling the Mask By Alpha feature. That helps

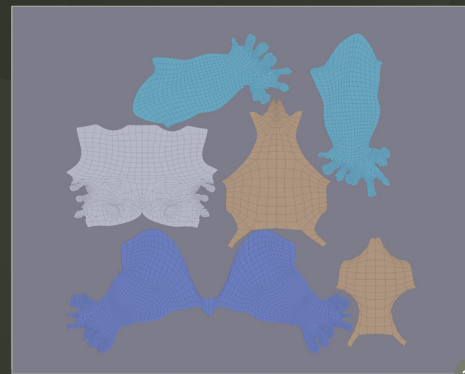
me a lot when painting textures in ZBrush. I can load a texture, edit the tiling and mask my model based on that texture. Doing that I can paint realistic textures and details, which would be impossible or much more time-consuming to do.

As a start, I add a simple noise layer to get a nice porous surface. I fill the whole model with a dark gray color as a base color layer. Then with the Clay brush, Spray stroke and a variety of alphas, I create a tonal variation (Fig.16 – 17).

This step depends a lot on the reference you are following and you always have to keep in mind where the bloodstream is more visible, where

the creature's skin is thicker, where the bones are, how close they are to the skin, and dirt etc.

When all that is done, I refine the texture using ZBrush's masking systems. Firstly, I mask the



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cavities and paint it with another color. Then in Mask PeaksAndValleys mode, I fill it with another color (Fig.18).

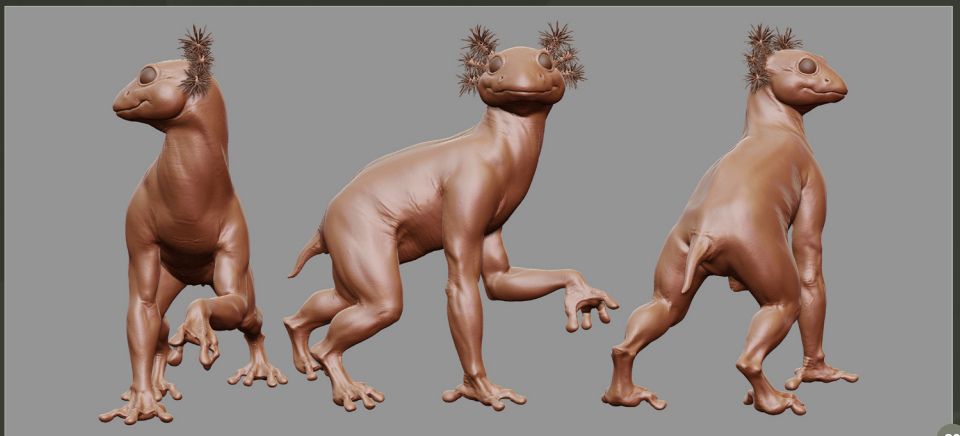
Now to get the texture done, I only need some spots, which are very common in most of the amphibious species. So I get an ink spotted texture and use the Mask By Alpha feature. Initially they look too big, so I tile the image about five times and mask again. It gives me a pretty good result and all I need to do is fill it with a black tint. Of course you may have some tiling issues visible, but it's only a matter of brushing that out (Fig.19).

Posing

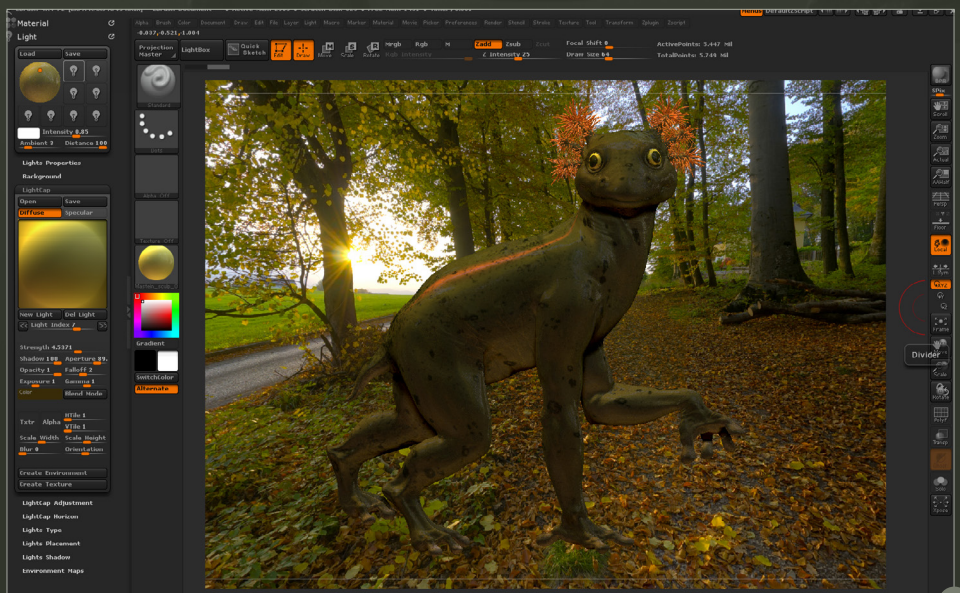
The pose is also very important. It delivers a lot of the creature's personality, the way it moves and the action line of the moment. I've used Transpose Master to pose everything together (Fig.20).

Render

The rendering process is pretty simple. I load a forest HDR image into the background and generate the LightCaps with reflection (Fig.21). Then I just boost the back light a bit.



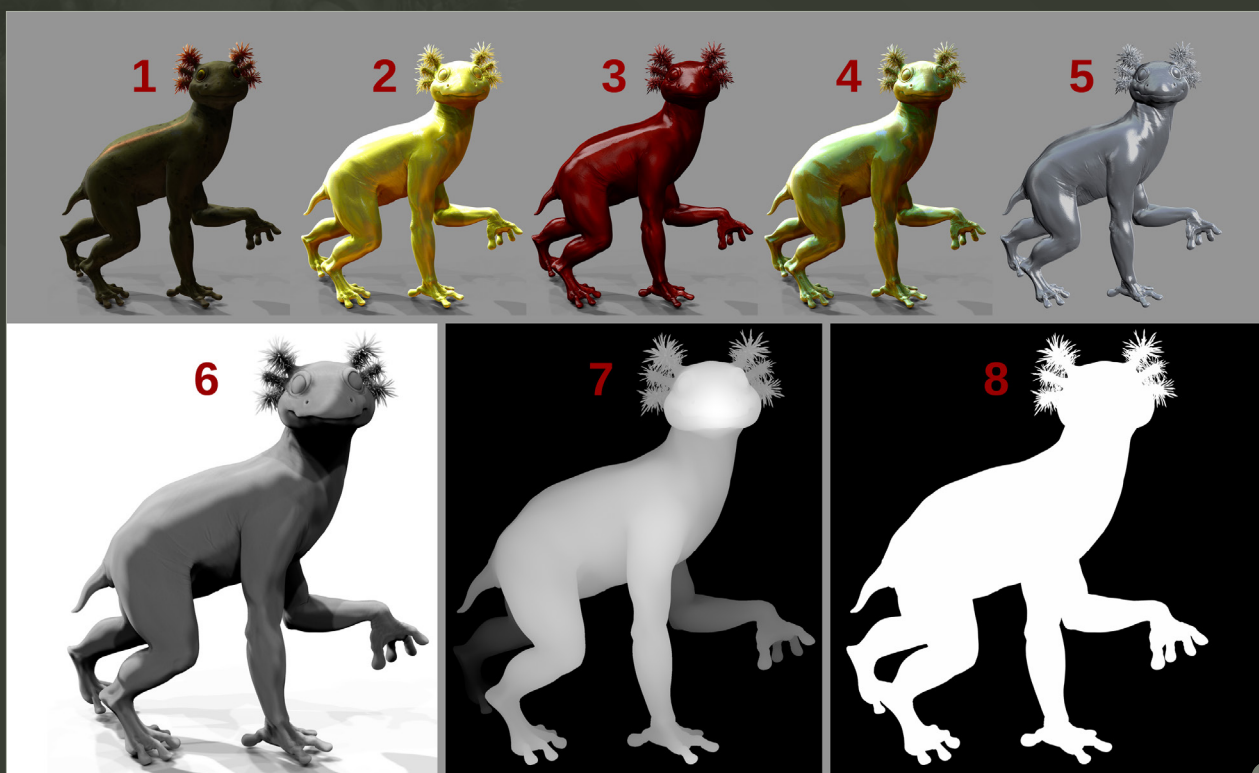
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For the materials I tweak the basic shader a bit for the body of the creature, and for the eyes I use the basic RGB levels shader (Fig.22).

Now for the final composition, I take a few different renders to combine in Photoshop (Fig.23):

1. Base render, with colors, light information and shaders
2. Render to boost the back light and reflections
3. Sharpen specular
4. Another "wet" shader to improve reflections
5. Different specular position
6. BPR shadows
7. BPR ZDepth
8. BPR Mask

I would like to thank 3DCreative for giving me the opportunity to share my work here. It was a super-fun experience for me and I hope you guys like the final result (Fig.24).

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24

"I ALWAYS MODEL IN A T-POSE
TO UTILIZE THE SYMMETRY AND
SO MY MODELS CAN BE EASILY
RIGGED."



SABRETOOTH

MAKING OF BY ADAM SACCO

In this month's Making Of Adam Sacco shows us how he created his favorite X-Men baddie, Sabretooth.
He demonstrates everything from the modeling process, to rendering and compositing.

SABRETOOTH

Software used: 3ds Max and ZBrush

Introduction

Sabretooth was my favorite villain from *X-Men* and on my list of characters I always wanted to make. The first thing I did was to collect as many references as I had time to and find a look I wanted to use. I plan to use this model in a Sabretooth vs. Wolverine scene when I get the time.

Modeling

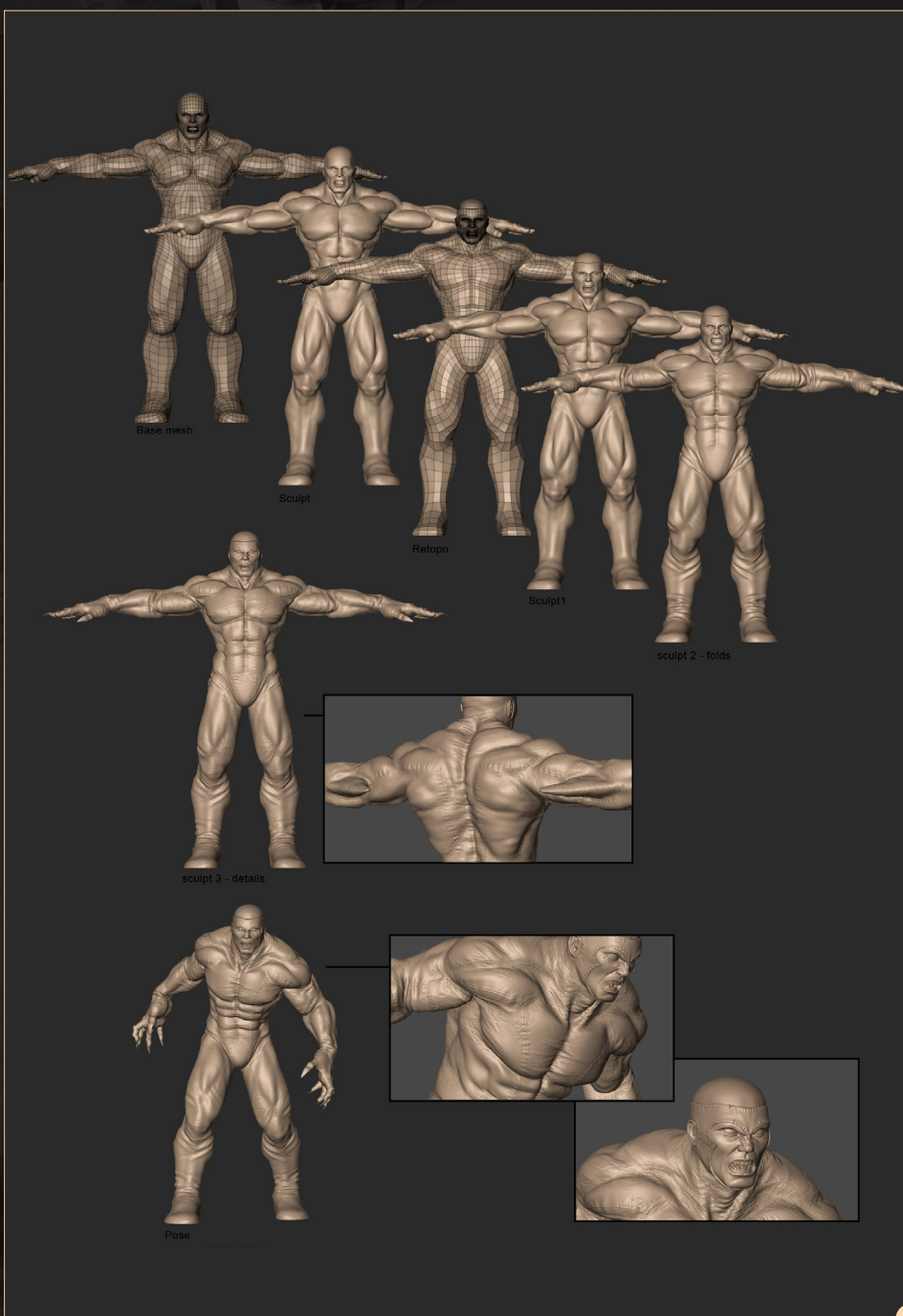
I always model in a T-pose to utilize the symmetry and so my models can be easily rigged. Modeling was started with a base mesh I already had from an older project. Before moving into ZBrush, I scaled my model to a realistic size in 3ds Max (Customize > Units Setup). If the scale isn't set to a real size, you will have problems with your SSS shader and other rendering settings.

I used ZBrush for sculpting the anatomy silhouette, using the Move and Move Topology brushes for the first few subdivisions. The muscles and leather folds/details were sculpted in the higher subdivisions, using the Clay Buildup, Dam Standard, Flatten and Move brushes. The Flatten brush was used in place of the Smooth brush to even out the surface. I find the Flatten brush gives more control and maintains more sculpted details.

TopoGun was used for retopology and then cleaned up in 3ds Max. I used the muscles as a guide for the edge flow on the body, so the mesh would deform correctly when the limbs were moving. Also this allowed the base mesh to capture more of the silhouette and form, resulting in less displacement (**Fig.01**).

UV

The UVs were cut up (creating seams) using the new feature in 3ds Max 2012: Unwrap UVW modifier. Once the UVs were defined, I used GoZ to export the model into ZBrush and used



the awesome plug-in "UV Master" to unwrap (flatten out and relax UVs), keeping the Use Existing Seams button active to utilize the premade seams in 3ds Max. Once the UVs were flattened, I used GoZ to take the model back into 3ds Max to rearrange the UV islands for easy texture painting.

Textures

The first thing I did for the textures was to decimate the high poly model with Keep UVs checked before taking it into 3ds Max. In 3ds

Max I used Render Surface Map in the Render menu, and rendered an Ambient Occlusion, Cavity and SSS map at 4096 x 4096px to use for my texture maps.

For the texture painting, use reference material. Try to perceive what is color and what is light shading, reflections and specular. Not many objects are only flat colors. Shadows, reflections and specular values will have colors of their own and change the look of an object/material.

I used ZBrush to polypaint the diffuse map (Fig.02) and the hair density masks. To paint the leather suit I painted the base flat orange and brown. Then I used Cavity masks and a variety of alphas, and the drag stroke with a Standard brush to add the worn leather effects. To make the texture look more believable I wanted to add as many defects as I could. Some things to look out for are sweat marks on clothing, dirt build ups, wear and aging of the material. Leather has a lighter brownish yellow when it cracks from excessive rubbing.

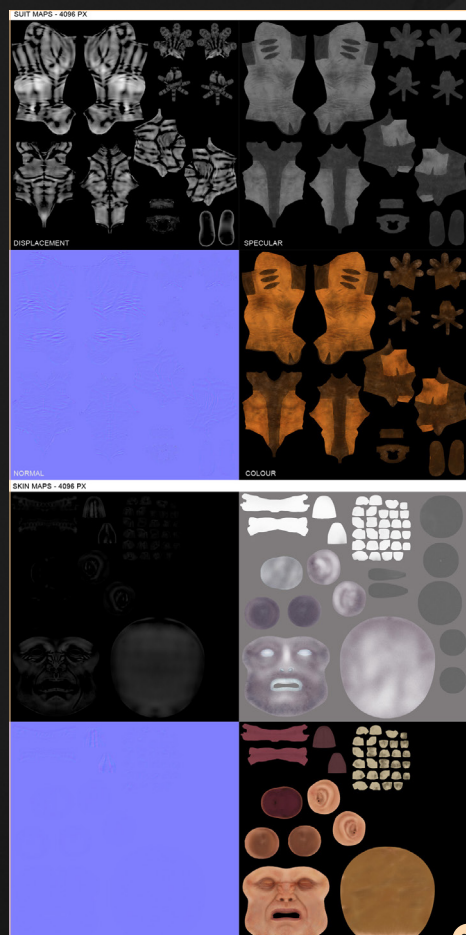
My model was seven subdivisions in ZBrush. The displacement was generated from subdivision 1-4 and the normal map was generated from 4 - 7. Displacement maps were generated using ZBrush as 32-bit EXR files (Fig.03).

Hair

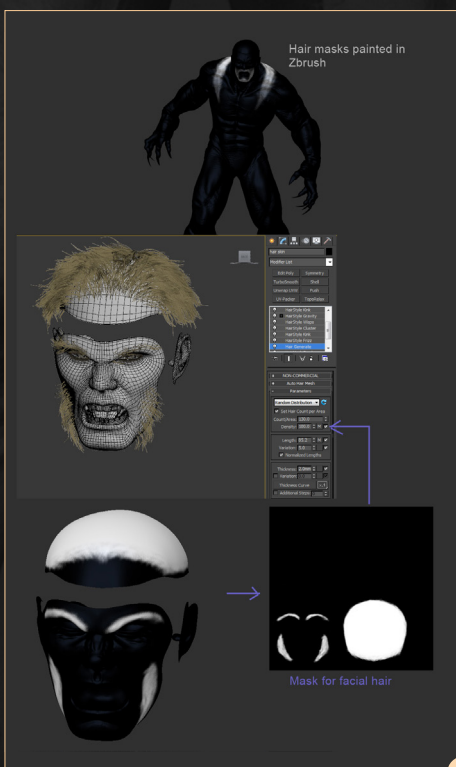
Hair Farm was used to make and render the hair. I used black and white masks to specify



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where the hair would be placed on the model (Fig.04). The hair was styled and hair shaders were made in a separate 3ds Max file using Scanline Render Engine, because of the speed



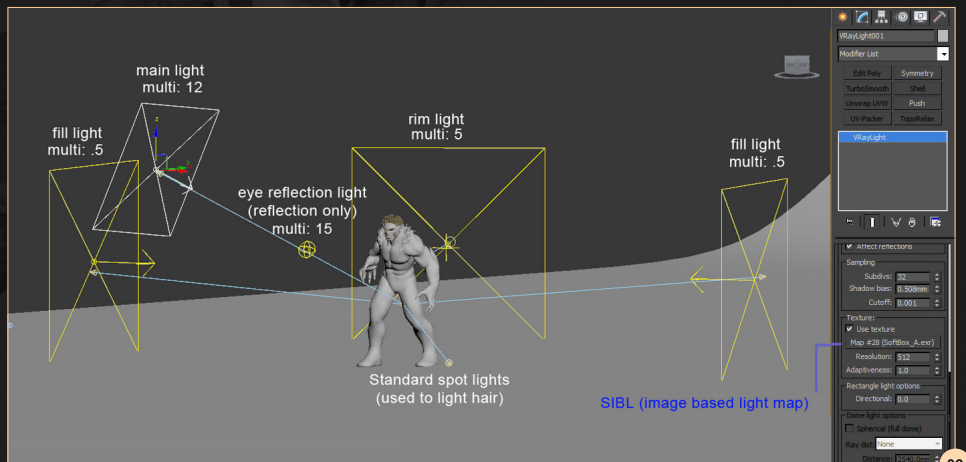
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in rendering. Standard spot lights were placed in the same position and intensity as the original V-Ray light (also required was lighting the hair in the final V-Ray render) (Fig.05). When I was

happy with the hair test renders I imported the standard lights and hair into my V-Ray scene.

Lighting

At this point the V-Ray scene consisted of V-Ray lights, standard spot lights (for illuminating hair only) and a HDRI placed in the V-Ray: Environment slots of the Render Setup menu. It sometimes helps to lower the gamma of your HDRI so it has more contrast, but it can cause a spotty light effect. It depends on the quality of the HDRI being used.



06

SIBL maps were utilized for textures in the V-Ray lights so they had a natural feel. I used a soft box image from www.hdrilabs.com (Fig.06).

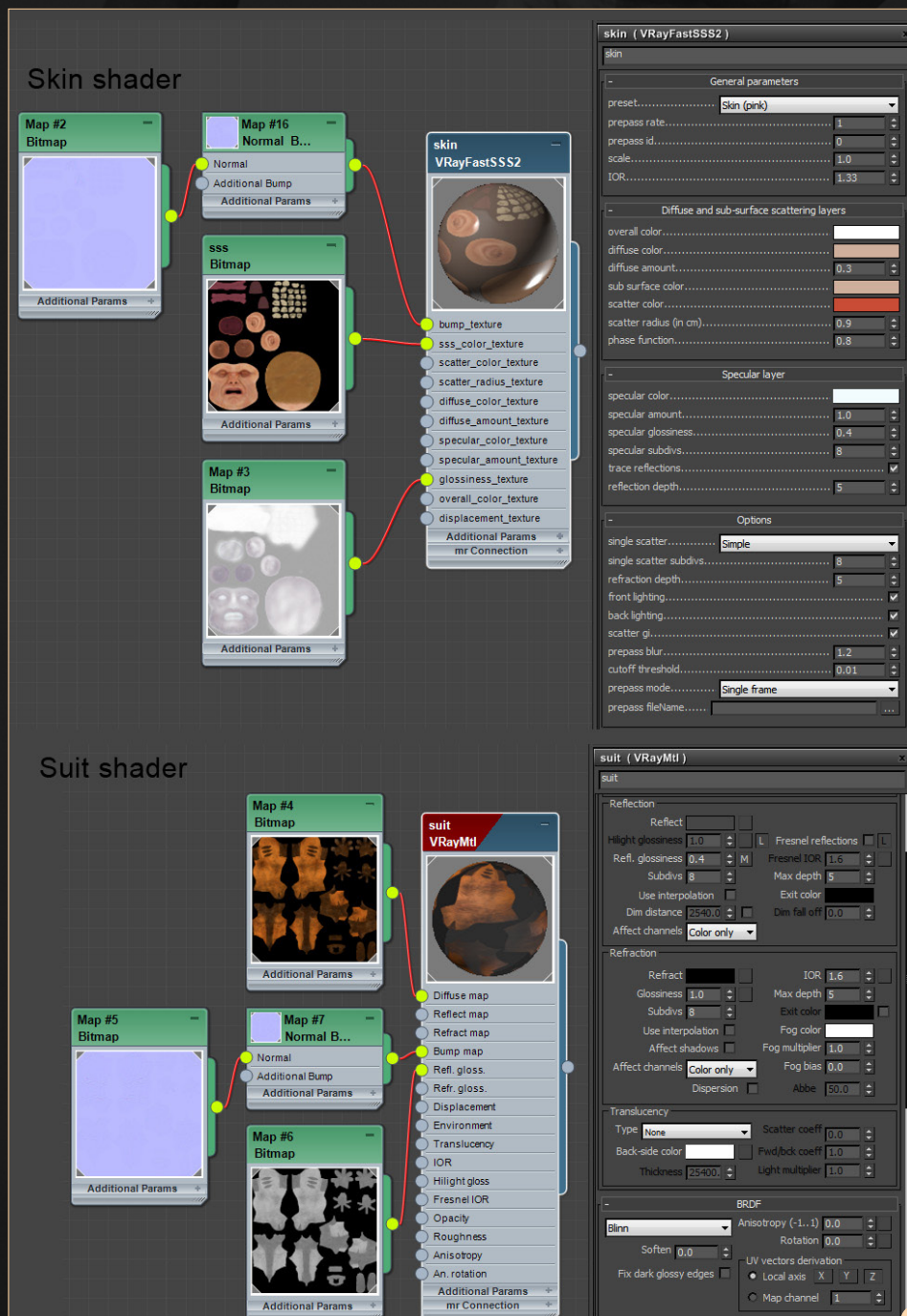
Shaders

The skin shader and SSS shader were very simple, as the model was going to be seen as a whole and not close up (Fig.07).

Rendering

I used a linear workflow in V-Ray (just Google it, there are plenty of online tutorials) to give me more control over the final render passes. I rendered all passes as 32-bit Open EXR files so I could control the gamma in post (Fig.08).

If you look at Fig.08 you will notice that it acts in a similar way to a HDR file, allowing you to lighten or darken each render pass without blacks and whites blowing out and losing



07



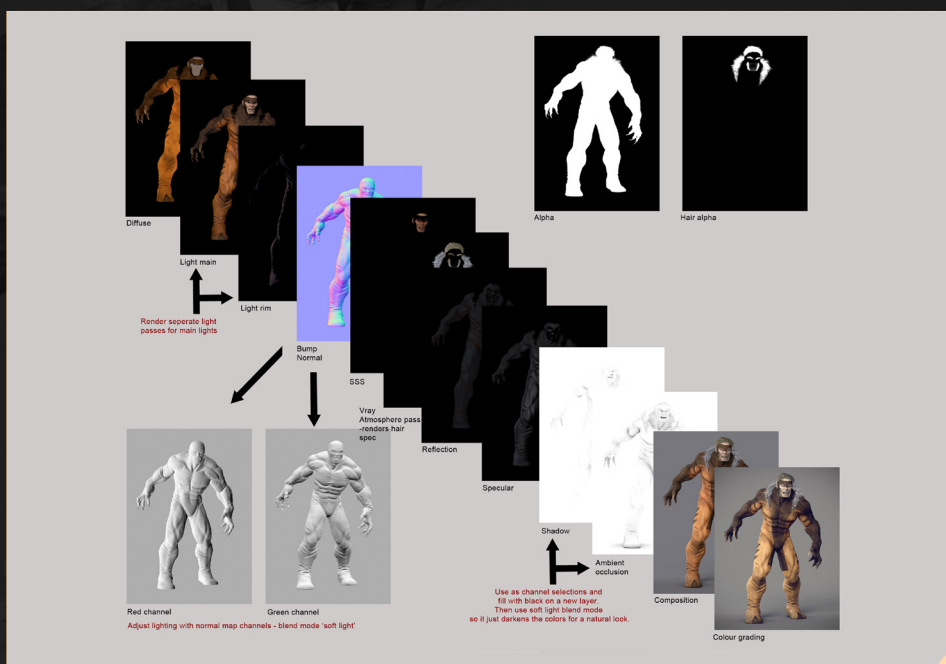
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information in your image. It's very handy to have such control in post when a single render can take from 8-24 hours. This also works for rendering animations as an image sequence.

In the VFB (V-Ray Frame Buffer) I used the "Display colors in SRGB space" to give me a preview of what the final render would look like in SRGB. It was a bit washed out, but the saturation could be adjusted in post.

Compositing

This is my favorite part of the process as I get to see what all my hard work is going to look like. For this I opened all the render passes and adjusted the gamma on the passes I felt needed it. Some tips I used are in **Fig.09**.



09



Conclusion

I hope some of you have found this helpful and I appreciate being given the opportunity to give back to the 3D community that helped me so much to learn 3D.

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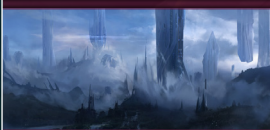
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EXCLUSIVE MAKING OF
VIKING
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VIKING

Software used: ZBrush and 3ds Max

Introduction

This image was a personal project I decided to start after watching *How to Train Your Dragon*. The actual idea wasn't to create a simple image, but rather to study each step of the process in depth. This image took me about five months to complete during my free time, which may seem lengthy but I'm sure that it has really helped me to improve my pipeline. My goal was to create a production quality character and therefore I spent a long time making sure it was right. I devoted a lot of time to studying topology, as well as the different hair systems, blend shapes, etc.

Concept Art

I usually tend to create a bit of a story behind my character and this was no exception. One night I woke up with this idea in my mind: a Viking with a pink martini! I thought it would make a funny contrast. Despite the fact that I don't draw very well, I decided to try out a few sketches and to set the camera as if the Viking was being viewed through the bartender's eyes. I also wanted to give the Viking a very specific expression (**Fig.01**).

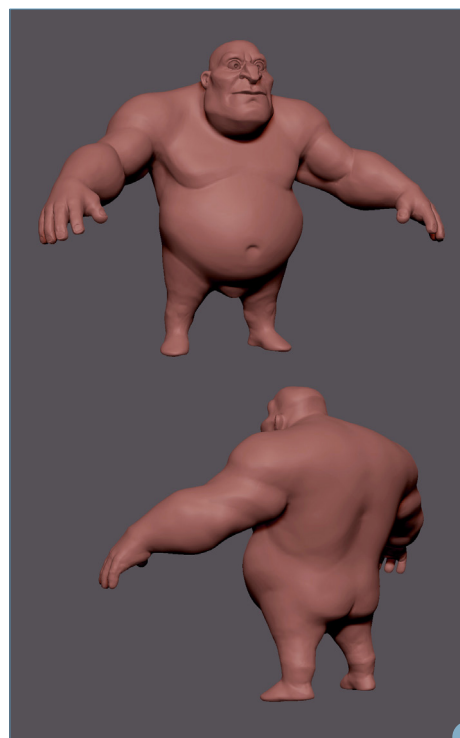


01

Modeling

I chose to create the character in ZBrush and by using ZSpheres was able to quickly create a base mesh from which to start sculpting. This process, in my opinion, is one of the most efficient approaches because you can focus on the design instead of worrying about the topology, which makes modeling more complicated.

To help design the character I used references from DreamWorks, Disney and Pixar. This kind of cartoon model is very simple and the hardest part is the design (**Fig.02**). I think having a lot of contrast in the proportions makes the character



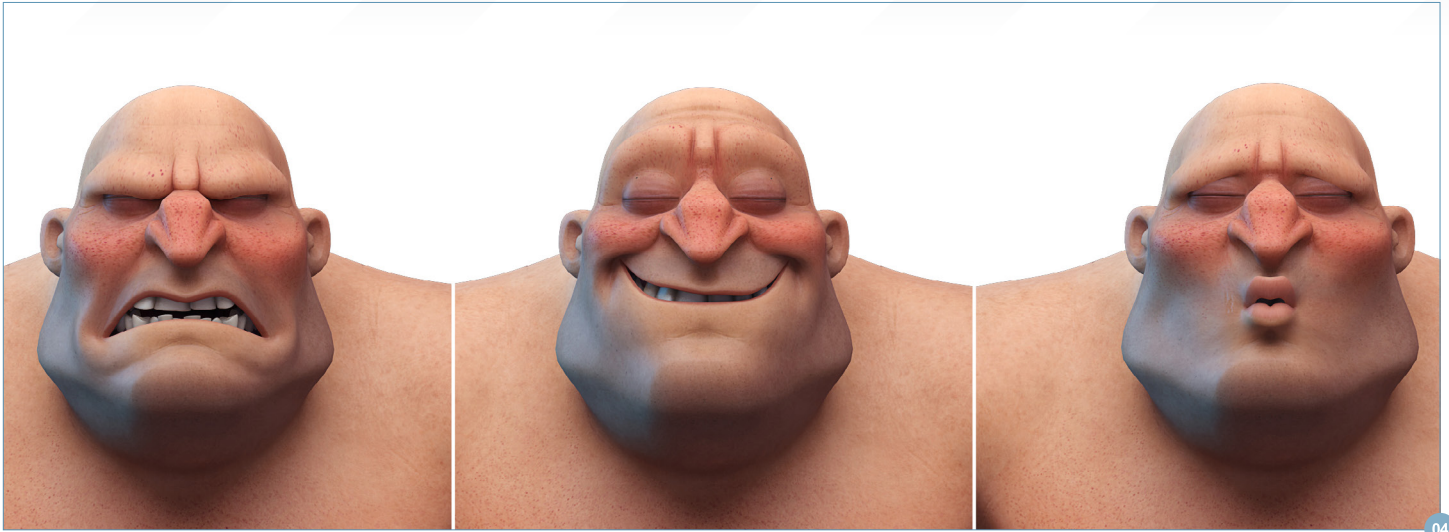
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look more interesting and for this reason I made him fat with small, thin legs



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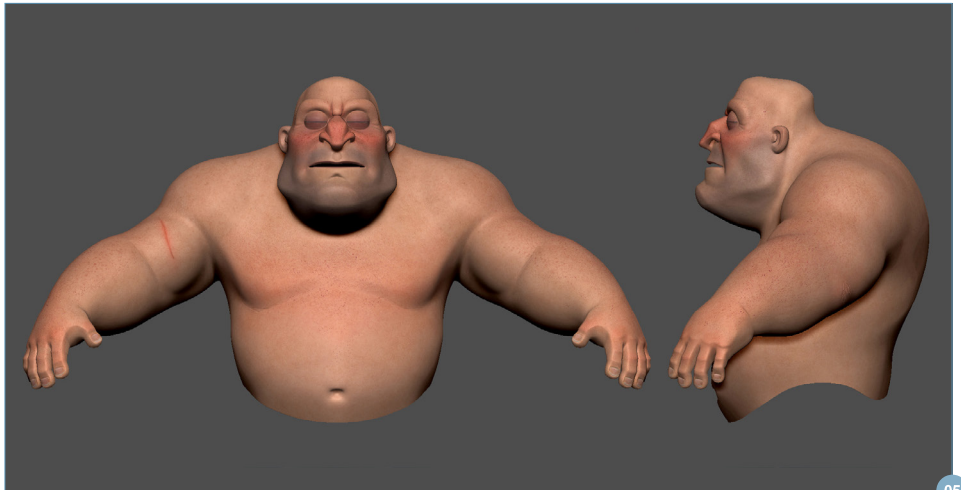
After I had finished the blocking-in I exported the OBJ file into 3ds Max and started the retopology process using the Graphite modeling tools. One of the advantages of using 3ds Max is that you can mix the topology tools with the standard polygon modeling tools. With the base mesh of my character done I was ready to start making his clothes and props inside 3ds Max. The environment was modeled with polygons, but I also used ZBrush to add the detailing and worn appearance (**Fig.03**).



04

Blend Shapes

Using blend shapes was one of the steps I enjoyed most because it is at this point that I could define his personality. I used many references to help me achieve stylized expressions, not least of which was Syndrome from *The Incredibles*, who was a great reference for what I had in mind. It's important to exaggerate the expression as much as you can while still maintaining a natural look. During the modeling process I used a mirror to observe myself and understand how the muscles react in different expressions (**Fig.04**).

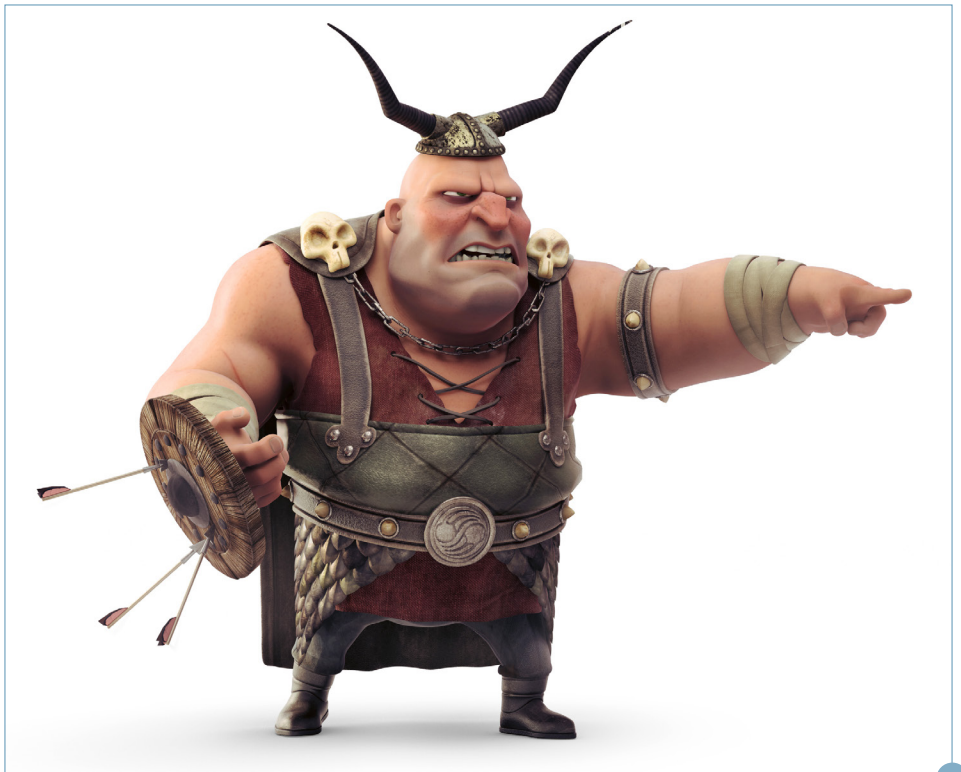


05

Texturing and Shading

I began creating the textures in ZBrush using polypaint because it's an easy way to define the basic color variation directly on the 3D model. After this I exported the maps into Photoshop so that I could start adding detail to them. For materials like the leather and fabric, I used seamless textures I found on websites like CGtextures.com, but the skin was completely hand-painted (**Fig.05**).

As I was planning to use mental ray to render my image, I chose the SSS Fast Skin material for the character's skin and skulls, and Arch & Design for the other objects. I tried different light rigs to observe how the shaders reacted as my plan was to do an animation using the Viking and so each of the materials needed to work regardless of the lighting scheme (**Fig.06**).



06

After many nights testing hair shaders, I discovered P_HairTK created by Ledin Pavel. I was looking for realistic hair rendering and this shader allowed Final Gather, raytraced shadows and many other features with a fast render time.

Hair

The hair was the most challenging part of this project. As the character is stylized I had to stylize his beard and hair as well, which was a nightmare. Initially I tried the new plugin called



HairFarm, but after many tests I decided to move back into 3ds Max's native Hair and Fur. The solution I eventually used was to divide the beard into different meshes. It gave me better control of the general shape and made the styling process easier (**Fig.07 – 08**).

Rigging

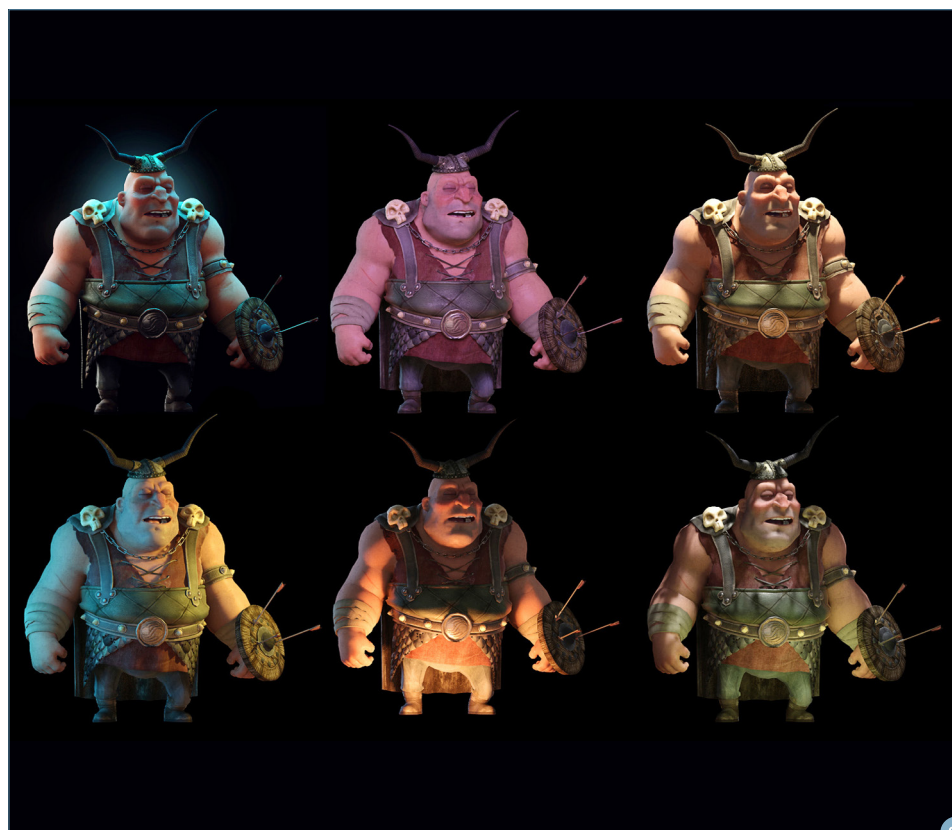
The rigging was done by my friend Alex Angelis. Before he began I showed him some rigging references by Alan Camilo (an amazing animator and rigger). This formed our starting point and once we had discussed what we both thought about how it should be done, we were confident we could come up with something approaching a professional quality. Despite doing things quickly, he made and remade several parts and worked tirelessly until the best result was achieved.

Lighting and Rendering

As I mentioned before, I used mental ray to render the scene. There are about twelve photometric lights in my scene, consisting of two main light sources: yellow being the main light and another blue light providing the rim lighting. All the remaining lights work as fill lights and light bounces. To help the light bounce I used Final Gather with a low preset (**Fig.09 – 10**).

Compositing

The final image was rendered at 4500 pixels wide and took about 10 hours to complete on an Intel i7 950. I rendered three passes: a beauty pass, a hair pass (to speed up the final render I separated the hair pass) and a Z-Depth pass.



DIGITAL ART MASTERS: VOLUME 7 Free Chapter

The Z-Depth pass was used to create the Lens Blur using the amazing Lenscare plugin for After Effects (**Fig.11**). For the color corrections I used Curves and Photoshop Gradient maps. Lightroom was used to add grain, vignetting and subtle chromatic aberration.

Conclusion

This project took me a long time to do, but provided me with an opportunity to grow as an artist and develop my perception and skills in both artistic and technical direction. Sometimes it is hard to manage my free time to complete a project, but it is definitely worthwhile. I'm really happy with the final result and with the opportunities this character presented to my professional career (especially this one in Digital Art Masters!). I would like to say thanks to my family, girlfriend and friends who supported me during this project.

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Please visit <http://vimeo.com/50522981> to see the animation of this image.



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